DPS Telecom

"Your Partners in Network Alarm Monitoring"

NetGuardian V16/M16 G2

USER MANUAL

D-PK-216V2
D-PK-M16G1
D-PK-C16V2

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Revision History

May 20, 2015	Display Mapping Update
December 19, 2014	Added Virtual Control sections
May 9, 2014	Added relay notification and alpha paging.
January 1, 2014	Added Web Timout
October 18, 2013	Added Derived Controls
October 16, 2013	Added Fiber top-board build option
September 5, 2013	Created Hybrid V16/M16 combination manual
May 10, 2013	Added SNMPv3, alarm qualification timers, and new notification features
April 29, 2013	Added Amphenol pinout information
April 17, 2013	Added SSL encrypted e-mail notification option.
April 9, 2013	Added alarm state duration timer
March 29, 2013	Added the Contact Closure Echo feature.
March 19, 2013	Added Graph feature to the Monitor menu in web browser interface
December 3, 2012	Added RADIUS, Voice Description Recording options, and additional User Access Rights
October 12, 2012	Merged NetGuardian 16 G2 and Voice 16 G2 manuals
September 10, 2012	Added Ping Targets, D-Wire sensors, and updated Display Mapping
February 13, 2012	Initial Release

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1 NetGuardian V16/M16 G2 Overview

Compact, easy-to-install, right-size capacity - this device offers a low-cost way of effectively monitoring smaller sites.

Note: This manual describes both the NetGuardian V16 G2 and the NetGuardian M16 G2. There is only one difference between these RTUs. The V16 has a voice modem for dial-out voice alerts, while the M16 has an optional serial/202 port instead.

The NetGuardian V16 G2 is predominately shown throughout this user manual. Configuration and setup processes are identical for both the NetGuardian M16 G2 and NetGuardian V16 G2, except where specifically noted.

Effective, easy-to-install, light-capacity alarm monitoring
The NetGuardian V16 G2 is a compact, LAN-based, light-capacity remote telemetry unit. This unit is designed for easy installation at small and medium remote sites, making it cost-effective to deploy alarm monitoring throughout your entire telecom network. The NetGuardian V16 G2 features the monitoring capacity plus voice dialing capabilities for flexible notifications.

Powerful monitoring for smaller sites
This telco-grade remote is housed in a durable aluminum case that can be rack-mounted. This SNMP remote is scaled to the needs of small sites, such as remote huts, collocation racks, and enclosed cabinets - perfect for any site where a large capacity RTU would be more than you need.

- **16 Discrete Alarm Inputs**
- **32 Ping Targets**
- **6 Analog Alarm Inputs**
- **2/18 Control Relay Outputs (Build option)**
- **1 Reach-through serial port (M16 G2 only)**
- **16 D-Wire temperature or humidity sensors**
- **Dial-in and out with DTMF acknowledge (V16 G2 only)**

SNMP or T/Mon
The device can report alarms to any SNMP manager or to the DPS Telecom T/Mon Remote Alarm Monitoring System. This NetGuardian can also report via SNMP and DCPx concurrently to T/Mon.

Easy Alerts via Email or SNMP
Email notification reports alarm events to the e-mail addresses of specified personnel and creates a supplemental record of alarm events in addition to your master via SNMP traps.

Upgraded Web Browser
The overhauled web interface that boasts several new monitoring tools, including new analog gauges. You'll also notice the impressive speed boost. Menus load very quickly, and the alarm status updates automatically without requiring a page refresh.

2 Specifications

Specifications

Hardware

Dimensions:	1.7" H x 17.0" W x 6.6" D
Mounting:	19" or 23" Rack
Weight:	2.25lb. (1.02 kg)
Power Input:	-48VDC (-36 to -72 VDC) (Optional) +24VDC (Optional) +12VDC
[3] **Current Draw:**	200mA @ -48VDC
Fuse:	3/4 Amp GMT
[1] **Power Outputs:**	(optional) +5VDC, +12VDC, or +24VDC
Audible Interfaces:	Alarm Speaker
Visual Interfaces:	5 Front Panel LEDs 6 Back Panel LEDs LCD Display
[1] **Hardware Interfaces:**	1 : DB50 (Discrete Inputs / Control Relays) 1 RJ45 10/100BaseT Ethernet 1 RJ11 connector for D-Wire sensor network 1 Serial port: RS232, RS485, or 202 (M16 G2 only) 1 Telco jack (V16 G2 only) (optional) 4 10/100/1000 copper Ethernet ports (optional) 2 1000 Base-X SFP Fiber ports
Modem:	33.6 K internal
Discrete Alarm Inputs:	16 (reversible)
[2] **Discrete Alarm Length:**	000Ft. (00m) per Alarm
Derived Alarm:	16
Analogs:	6 (4 user-definable, 2 for voltage monitoring)
Input Range:	–90 to 90 VDC or 4 to 20 mA
[4] **Analog Accuracy:**	± 1% of Analog Range
Control Outputs:	2 Relays (Optional 18 Relays)
Max Voltage:	60 VDC/120 VAC
Max Current:	1A AC/DC
Operating Temp:	32° to 140°F (0° to 60°C)
[1] **Industrial Operating Temp:**	-22° to 158°F (-30° to 70°C)
Storage Temp:	00° to 00°F (00° to 00°C)
Operating Humidity:	0% to 95% non-condensing
MTBF:	60 Years
RoHS:	RoHS 5/6 Approved
Ordering Options:	4-Port 10/100 Switch, SPF Fiber, Sensor Supply

Software

Downloadable Firmware:	Yes
Built-in Web Interface:	Yes
Browser Support:	IE9, IE10, Firefox…..
Protocols:	DCPx, TELNET, HTTP, HTTPS, Email, TRIP, TAP
SNMP Support:	SNMPv1, SNMPv2c, SNMPv3
[1] **D-Wire Sensor Support:**	Temp, Temp/Humidity
Ping Alarms:	32
OS Support:	XP, Vista, 7 32/64 bit

Note:

[1] Valid if hardware option is included.

[2] Minimum lengths determined with TTL voltage level alarms. Actual distance may vary.

[3] Current measured at rated voltage with all controls latched and all alarms triggered.

[4] See analog section in manual for detailed analog accuracy breakdown.

* This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

3 Shipping List

Please make sure all of the following items are included with your NetGuardian V16/M16 G2. If parts are missing, or if you ever need to order new parts, please refer to the part numbers listed and call DPS Telecom at **1-800-622-3314**.

NetGuardian M16 G2 or Voice G2 Unit
D-PK-216V2 / C16V2

NetGuardian M16 G2 / V16 G2 User Manual
D-UM-216V2 / C16V2

NetGuardian M16 G2 / V16 G2 Resource CD

6 ft. USB Download Cable
D-PR-046-10A-06

Pads
2-015-00030-00

14 ft. Ethernet Cable
D-PR-923-10B-14

x 2
Two Locking 2-pin Power Connectors
2-820-35102-00

X 2
19" Rack Ears
D-CS-325-10A-00

X 2
23" Rack Ears
D-CS-325-10A-01

x 3
Three 3/4-Amp GMT Fuses
2-741-00750-00

x 4
Two Standard Rack Screws
1-000-12500-06

x 8
3/8" Ear Screws
2-000-60375-05

x 4
Four Metric Rack Screws
2-000-80750-03

Telephone Cable 6 ft (V16 G2 Only)
D-PR-045-10A-01

3.1 Optional Shipping Items - Available by Request

D-Wire Temperature Sensor
D-PK-DSNSR-12001.00001

D-Wire Temperature/Humidity Sensor
D-PK-DSNSR-12002.00002

3.2 Optional NetGuardian Accessories

If you would like to order any of these accessories, or if you would like more information about them, call DPS Telecom at **(800) 622-3314**.

Pluggable Back Panel
D-PK-16PAN
The NetGuardian's pluggable back panel allows for screw-in barrier plug connections for the NetGuardian's alarms and relays.

4 Installation

4.1 Tools Needed

To install the NetGuardian, you'll need the following tools:

Phillips No. 2 Screwdriver

Small Standard No. 2 Screwdriver

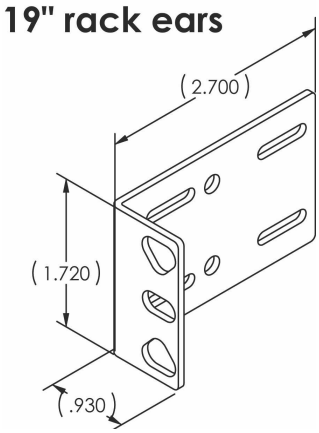
PC with terminal emulator, such as HyperTerminal

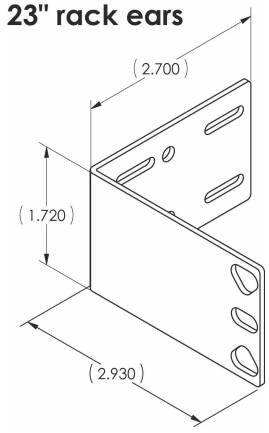
4.2 Mounting

NetGuardian can be flush or rear-mounted

The NetGuardian mounts in a 19" or 23" rack and can be mounted in the flush-mount or rear mount locations, as shown in.

The rack ears can be rotated 90° for wall mounting or 180º for other mounting options.





5 NetGuardian Back Panel

NetGuardian M16 G2 / V16 G2 back panel connections

NetGuardian M16 G2 / V16 G2 back panel (with Fiber Option)

5.1 Fiber Option

Build Option: NetGuardian V16/M16 with GigE Fiber Top Board
If your NetGuardian V16/M16 was ordered with the GigE Fiber top board, 1000Base SFP interface must be used. The SFP ports are internally connected to the 4 port switch and device LAN interface.

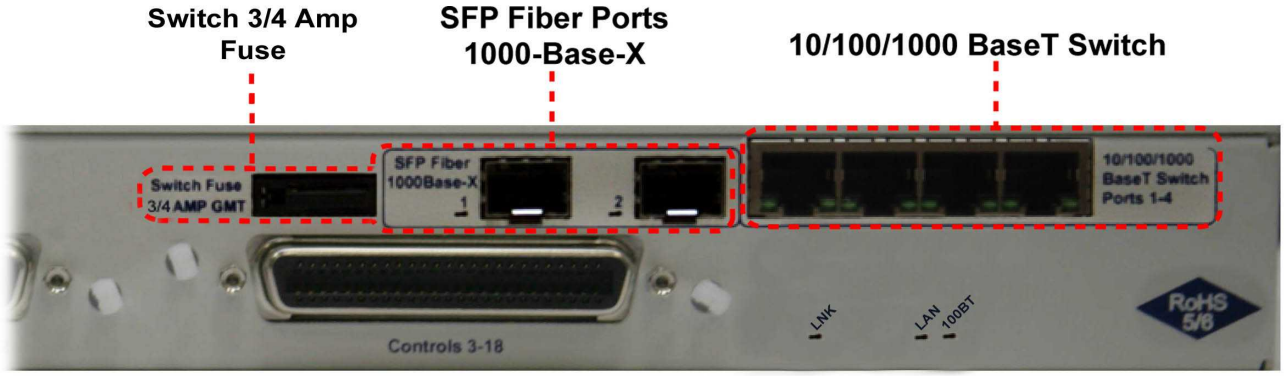


Fig. 6.4.4. *Back panel of NetGuardian V16/M16 G2 with fiber*

5.2 Power Connection

The NetGuardian is powered by two barrier plug power connectors.

Locking RIA power inputs

To connect the NetGuardian to a power supply:

1. Use the grounding lug to connect the unit to earth ground. The grounding lug is next to the symbol ⏚.
2. Insert the eyelet of the earth ground cable between the two bolts on the grounding lug (Ground cable not included).
3. Insert a battery ground into the power connector plug's right terminal and tighten the screw.
4. Insert a battery lead to the plug's left terminal and tighten its screw.
5. Insert fuse into the fuse distribution panel.
6. Check the power status LED for polarity.
7. Measure voltage. Connect the black cable onto the ground connector of your Digital Voltage Meter (DVM) and red cable onto the other connector of your DVM. The voltmeter should read between -36 VDC and -72 VDC.

Note: If the voltage does not read between -36 VDC and -72 VDC, stop immediately.

8. Insert the local fuse into the power fuse slot. The power plug can be inserted into the power connector only one way to ensure the correct polarity.

Note: The negative voltage terminal is on the left and the GND terminal is on the right.

9. Verify that the LED is lit. To confirm that power is correctly connected, the front panel status LED will flash RED and GREEN, indicating that the firmware is booting up.

5.3 LAN Connection

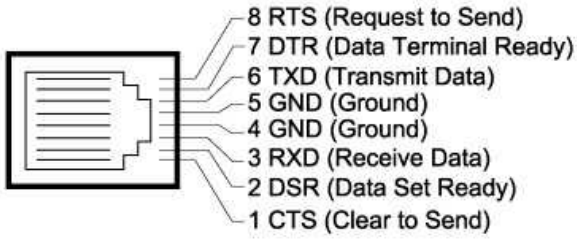
To connect the unit to LAN, insert a standard RJ45 Ethernet cable into the 10/100BaseT Ethernet port on the back of the unit. If the LAN connection is OK, the LNK LED will light **SOLID GREEN**.

5.4 Serial Connection (M16 G2 Only)

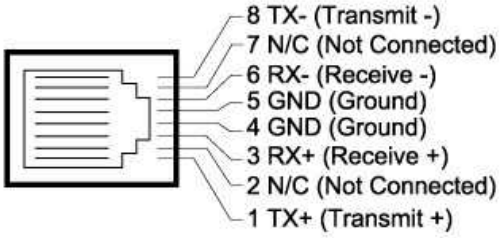
The NetGuardian M16 G2 has 3 build options for it's serial / dialup port. You can order your port as a **Yost RS-232, RS-485, 202 modem,** or **4-wire 202 RJ45**. The serial port is located on the back panel, where it is labeled "Primary."

Serial port build options

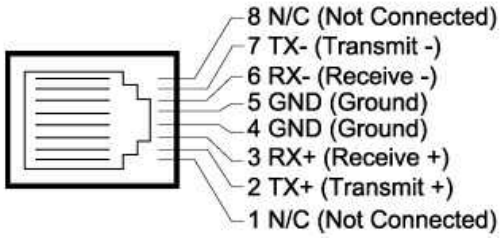
Yost RS-232 RJ45 Connector


8 RTS (Request to Send)
7 DTR (Data Terminal Ready)
6 TXD (Transmit Data)
5 GND (Ground)
4 GND (Ground)
3 RXD (Receive Data)
2 DSR (Data Set Ready)
1 CTS (Clear to Send)

RS-485 RJ45 Connector



4-Wire 202 Connector



Serial Port Pinout

Hot Tip! If you are unsure of the serial port type on your NetGuardian, login to MyDPS and click on the Product Information Search link. Type in the full part number of your unit and click the Submit button to access the specifications.

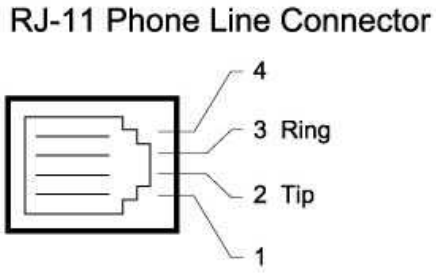
The serial port can be used for two different functions:

- Reach-through proxy connection for LAN-based Telnet access to switches, radios, PBXs and other equipment.
- Alarm reporting to the T/Mon Remote Alarm Monitoring System over an RS-232, 485, 202, or dial-up modem.

Note: If the serial port is configured for alarm reporting to T/Mon, the port is **not** available for use as a reach-through proxy port.

5.5 Telco Connection (V16 G2 Only)

The NetGuardian V16 G2 features an RJ11 Telco port on the back of the unit. This port is used for dial-up notification via your cell phone and alphanumeric pager.



Telco Port Pinout

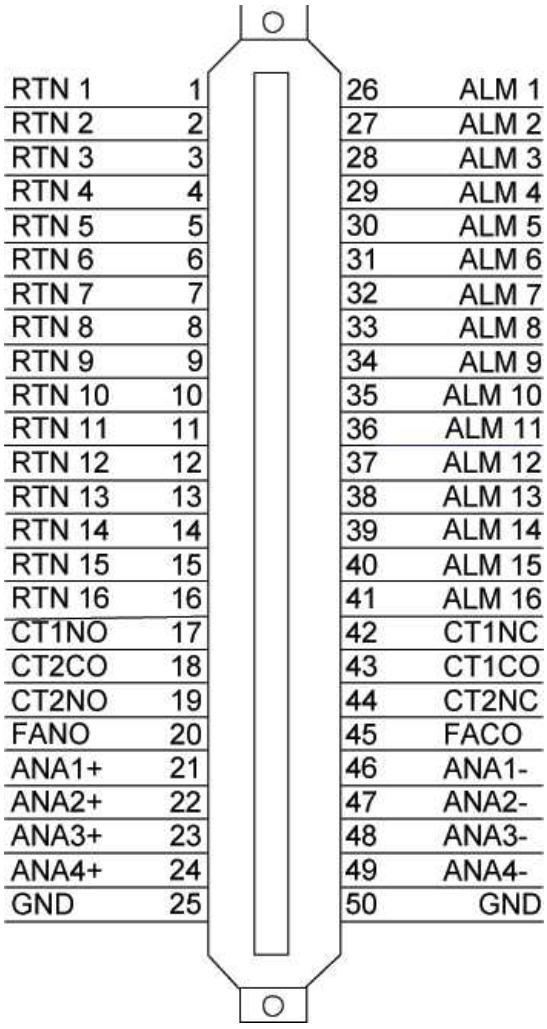
5.6 50-Pin Alarm and Control Relay Connector

The primary connectors for discrete alarms, analog alarms and control relays are the 50-pin Amphenol connector on the NetGuardian's back panel.

Discretes 1–16					
	RTN	ALM		RTN	ALM
ALM 1	1	26	**ALM 9**	9	34
ALM 2	2	27	**ALM 10**	10	35
ALM 3	3	28	**ALM 11**	11	36
ALM 4	4	29	**ALM 12**	12	37
ALM 5	5	30	**ALM 13**	13	38
ALM 6	6	31	**ALM 14**	14	39
ALM 7	7	32	**ALM 15**	15	40
ALM 8	8	33	**ALM 16**	16	41

Analogs 1–4		
	+	–
ANA 1	21	46
ANA 2	22	47
ANA 3	23	48
ANA 4	24	49
GND	25	50

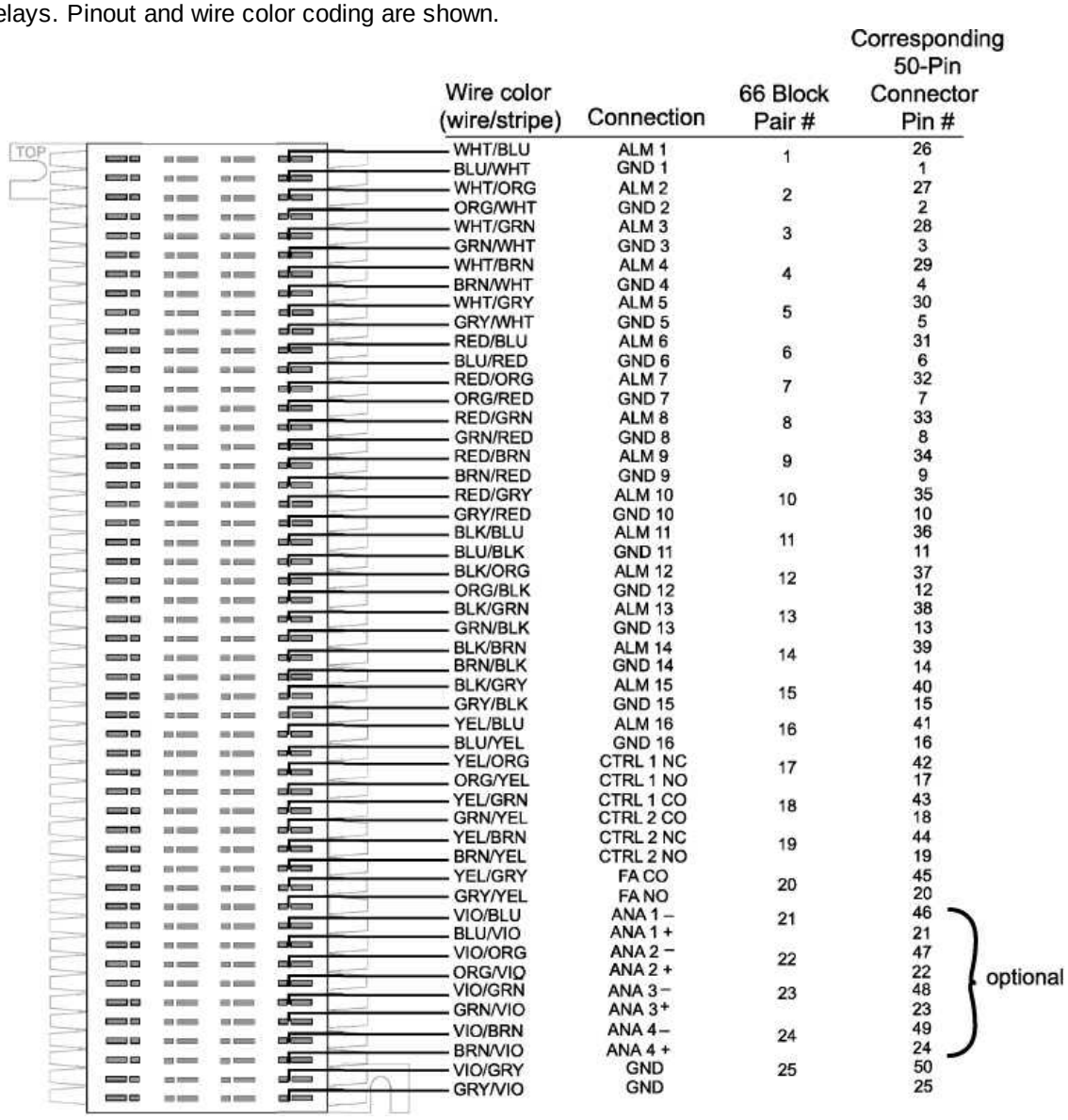
Control Relatys 1–2		
	NO/NC	CO
CTRL 1	17/42	43
CTRL 2	19/44	18
FUSE	20/NA	45



Amphenol connector pinout.

5.7 Optional 66 Block Connector

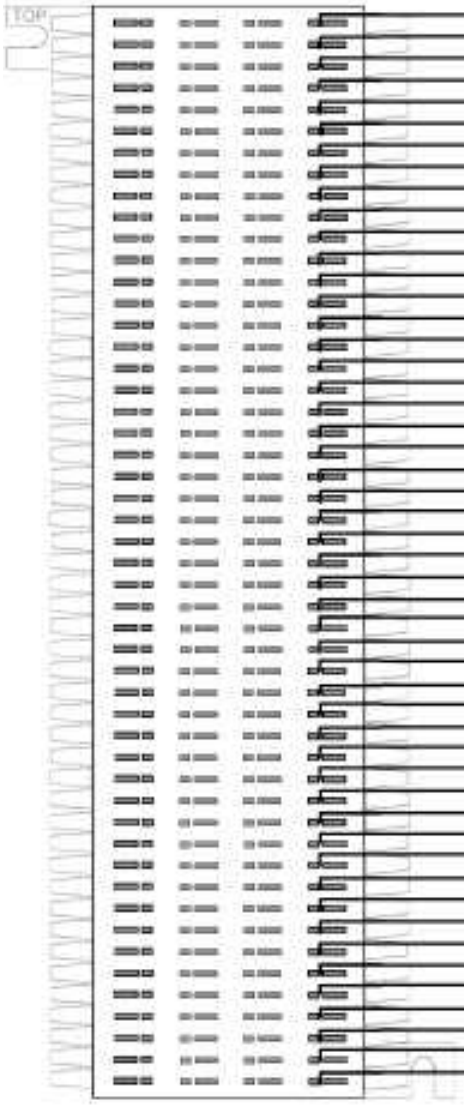
The unit is also available with an optional 66 Block Connector for connecting discrete alarms, analog alarms and control relays. Pinout and wire color coding are shown.



Wire color (wire/stripe)	Connection	66 Block Pair #	Corresponding 50-Pin Connector Pin #
WHT/BLU	ALM 1	1	26
BLU/WHT	GND 1		1
WHT/ORG	ALM 2	2	27
ORG/WHT	GND 2		2
WHT/GRN	ALM 3	3	28
GRN/WHT	GND 3		3
WHT/BRN	ALM 4	4	29
BRN/WHT	GND 4		4
WHT/GRY	ALM 5	5	30
GRY/WHT	GND 5		5
RED/BLU	ALM 6	6	31
BLU/RED	GND 6		6
RED/ORG	ALM 7	7	32
ORG/RED	GND 7		7
RED/GRN	ALM 8	8	33
GRN/RED	GND 8		8
RED/BRN	ALM 9	9	34
BRN/RED	GND 9		9
RED/GRY	ALM 10	10	35
GRY/RED	GND 10		10
BLK/BLU	ALM 11	11	36
BLU/BLK	GND 11		11
BLK/ORG	ALM 12	12	37
ORG/BLK	GND 12		12
BLK/GRN	ALM 13	13	38
GRN/BLK	GND 13		13
BLK/BRN	ALM 14	14	39
BRN/BLK	GND 14		14
BLK/GRY	ALM 15	15	40
GRY/BLK	GND 15		15
YEL/BLU	ALM 16	16	41
BLU/YEL	GND 16		16
YEL/ORG	CTRL 1 NC	17	42
ORG/YEL	CTRL 1 NO		17
YEL/GRN	CTRL 1 CO	18	43
GRN/YEL	CTRL 2 CO		18
YEL/BRN	CTRL 2 NC	19	44
BRN/YEL	CTRL 2 NO		19
YEL/GRY	FA CO	20	45
GRY/YEL	FA NO		20
VIO/BLU	ANA 1 –	21	46
BLU/VIO	ANA 1 +		21
VIO/ORG	ANA 2 –	22	47
ORG/VIO	ANA 2 +		22
VIO/GRN	ANA 3 –	23	48
GRN/VIO	ANA 3 +		23
VIO/BRN	ANA 4 –	24	49
BRN/VIO	ANA 4 +		24
VIO/GRY	GND	25	50
GRY/VIO	GND		25

optional

Optional 66 block connector pinout

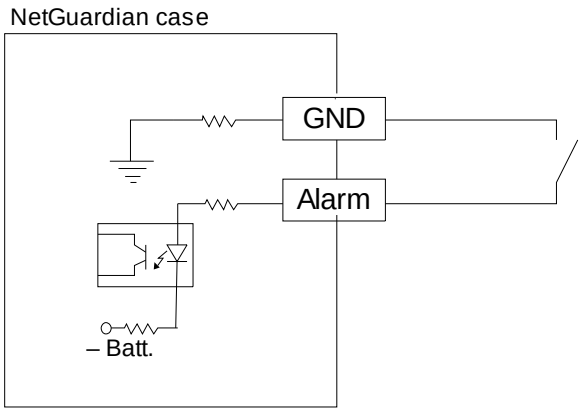


Wire color (wire/stripe)	Connection	66 Block Pair #	Corresponding 50-Pin Connector Pin #
WHT/BLU	CT3NC	1	26
BLU/WHT	CT3NO		1
WHT/ORG	CT3CO	2	27
ORG/WHT	CT4CO		2
WHT/GRN	CT4NC	3	28
GRN/WHT	CT4NO		3
WHT/BRN	CT5NC	4	29
BRN/WHT	CT5NO		4
WHT/GRY	CT5CO	5	30
GRY/WHT	CT6CO		5
RED/BLU	CT6NC	6	31
BLU/RED	CT6NO		6
RED/ORG	CT7NC	7	32
ORG/RED	CT7NO		7
RED/GRN	CT7CO	8	33
GRN/RED	CT8CO		8
RED/BRN	CT8NC	9	34
BRN/RED	CT8NO		9
RED/GRY	CT9NC	10	35
GRY/RED	CT9NO		10
BLK/BLU	CT9CO	11	36
BLU/BLK	CT10CO		11
BLK/ORG	CT10NC	12	37
ORG/BLK	CT10NO		12
BLK/GRN	CT11NC	13	38
GRN/BLK	CT11NO		13
BLK/BRN	CT11CO	14	39
BRN/BLK	CT12CO		14
BLK/GRY	CT12NC	15	40
GRY/BLK	CT12NO		15
YEL/BLU	CT13NC	16	41
BLU/YEL	CT13NO		16
YEL/ORG	CT13CO	17	42
ORG/YEL	CT14CO		17
YEL/GRN	CT14NC	18	43
GRN/YEL	CT14NO		18
YEL/BRN	CT15NC	19	44
BRN/YEL	CT15NO		19
YEL/GRY	CT15CO	20	45
GRY/YEL	CT16CO		20
VIO/BLU	CT16NC	21	46
BLU/VIO	CT16NO		21
VIO/ORG	CT17NC	22	47
ORG/VIO	CT17NO		22
VIO/GRN	CT17CO	23	48
GRN/VIO	CT18CO		23
VIO/BRN	CT18NC	24	49
BRN/VIO	CT18NO		24
VIO/GRY	GND	25	50
GRY/VIO	GND		25

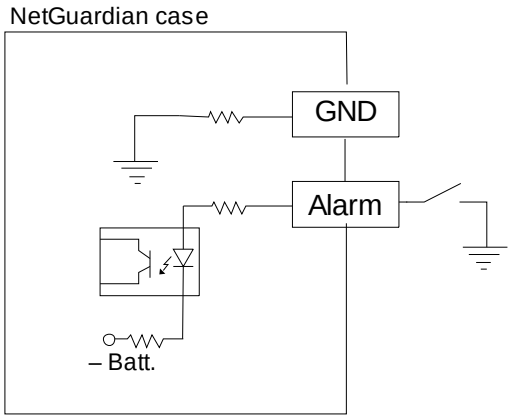
Optional 66 block connector pinout for controls

5.8 Discrete Alarms

Dry Contact



Contact to Ground



Note: Make sure that grounds have a common reference - this is usually done by tying grounds together.

Discrete alarm points can connect as a dry contact or a contact to ground

This device features 16 discrete alarm inputs - also called digital inputs or contact closures. Discrete alarms are either active or inactive, so they're typically used to monitor on/off conditions like power outages, equipment failures, door alarms and so on.

The NetGuardian's discrete alarm points are single-lead signals referenced to ground. The ground side of each alarm point is internally wired to ground, so alarm points can connect either as a dry contact or a contact to ground.

In a dry contact alarm: The alarm lead brings a contact to the ground lead, activating the alarm.

In a contact to ground alarm: A single wire brings a contact to an external ground, activating the alarm.

You can reverse the polarity of each individual discrete alarm point, so that the alarm is activated when the contact is open. This is done with a software configuration change.

5.9 Analog Alarms

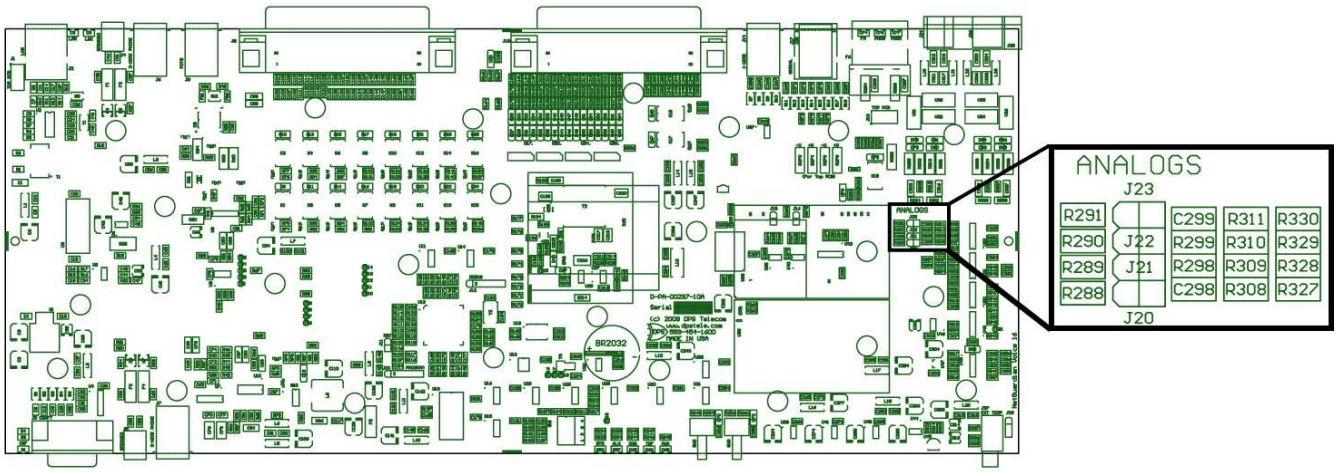
The NetGuardian's analog alarm inputs measure continuous ranges of voltage or current. Analog alarms are typically used to monitor battery voltage, charging current, temperature, humidity, wind speed, or other continuously changing conditions. The measurement range of the analog channels is -90 to +90 VDC or 4 to 20 mA. To configure the analogs for current sensing (4 - 20mA) please review the next section for jumper position.

You can use analogs 1 through 4 to monitor whatever you like. Analogs 5 and 6 are pre-configured to monitor Battery A and B. Read the following table to see where to connect the analogs.

Analog #	Connection
ANA 1	User-definable; connects to the 50-pin amphenol.
ANA 2	User-definable; connects to the 50-pin amphenol.
ANA 3	User-definable; connects to the 50-pin amphenol.
ANA 4	User-definable; connects to the 50-pin amphenol.
ANA 5	Pre-configured to monitor Battery A.
ANA 6	Pre-configured to monitor Battery B.

By default, the analog inputs are configured to measure voltage. You can switch the analog inputs to measure current by resetting jumpers on the NetGuardian circuit board.

5.9.1 Switching Analog Alarms to Current Operation

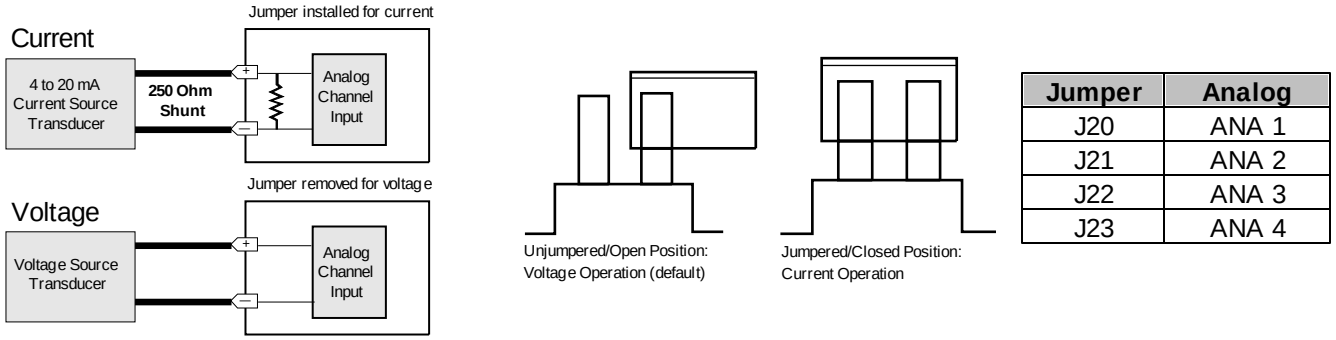


Adjustable jumpers on the NetGuardian circuit board

By default, the analog inputs are configured to measure voltage. You can switch the analog inputs to measure current by resetting jumpers on the NetGuardian's circuit board.

To test the analog alarm voltage/current jumpers, follow these steps:

1. Make sure the NetGuardian is depowered and disconnected from all network connections.
2. Remove the screws from the sides of the NetGuardian case.
3. Slide the top cover of the case off to expose the circuit board.
4. The adjustable jumpers are shown in. All alarm inputs can be individually configured for current or voltage operation. Remember that the default jumper position is OPEN for measuring voltage. **Note:** Each jumper inserts a 250-ohm shunt resistor across the input. This must be taken into account when defining the analog input reference scale.



Jumper	Analog
J20	ANA 1
J21	ANA 2
J22	ANA 3
J23	ANA 4

Jumper settings for analog alarms inputs.

5. Slide the top cover of the case back into position and replace the screws.
6. Reconnect and power up the NetGuardian.

5.9.2 Analog Step Sizes

Analog Step Sizes		
Input Voltage Range	**Resolution (Step Size)**	**Accuracy**
0-5 V	.0015 V	+/- .05V
5-14 V	.0038 V	+/- .14V
14-30 V	.0081 V	+/- .30V
30-70 V	.0182 V	+/- .70V
70-90 V	.0231 V	+/- .90V

Analog step sizes

5.9.3 D-Wire External Sensors

The ports on your NetGuardian labeled **Digital Sensors** support up to **D-Wire sensors**. Your NetGuardian powers and communicates with your D-Wire sensors via simple RJ-11 connections. You can chain your 16 sensors to the D-Wire port on the NetGuardian.

The max cable length depends on the number of sensors daisy chained together. The cable lengths and corresponding number of sensors can be seen in the table below.

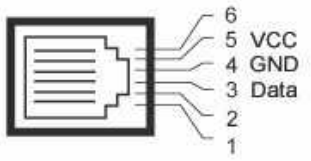
Maximum Cable Lengths							
Number of Nodes	Spec'd Max (ft)	Number of Nodes	Spec'd Max (ft)	Number of Nodes	Spec'd Max (ft)	Number of Nodes	Spec'd Max (ft)
1	800	9	150	17	75	25	50
2	700	10	125	18	75	26	50
3	475	11	125	19	50	27	50
4	350	12	100	20	50	28	50
5	275	13	100	21	50	29	50
6	225	14	100	22	50	30	40
7	200	15	75	23	50	31	40
8	175	16	75	24	50	32	40

Maximum Cable Lengths

Note: Some sensors may consume 2 analog channels (the combined temp/humidity sensor, D-PK-DSNSR-12002, for example).

Connecting D-Wire Sensors

Warning: Be sure to only use a **straight-through RJ-11 cable** (part #D-PR-901-10A-XX, pinout below) to connect any digital sensor port on the NetGuardian to the **In** jack on a D-Wire sensor. Chain additional sensors to the D-Wire sensor (using the same straight-through cables) from the **Out** jack on the previous sensor to the **In** jack on the next (i.e. Out on sensor 4 to In on sensor 5).



Pinout for the NetGuardian and D-Wire Sensor RJ-11 jacks

The D-Wire line of sensors includes temp/humidity, additional analogs, discretes, and more. Contact DPS at 1-800-693-0351 for information about available D-Wire sensors.

For details about configuring your sensors though the web interface, see the **Sensors** section of this manual.

6 NetGuardian Front Panel

NetGuardian M16 G2 / V16 G2 Front panel connections

LED	Status	Description
Alarm	Flashing Red	New alarm
	Solid Red	Standing alarm acknowledged
Error	Flashing Red	System error
Primary	Flashing Green	Data transmitted on PRI Serial
	Flashing Red	Data recieved on PRI Serial
Power	Solid Green	Power supply OK
	Off	No voltage or power leads reversed
Craft	Flashing Green	Transmitting data over craft port
	Flashing Red	Receiving data over craft port
Status	Flashing Green	Application is running
	Flashing Red	Boot Loader is running

Front Panel LED Descriptions

6.1 Craft Port

Use the front panel craft port to connect the NetGuardian to a PC for onsite unit configuration. To use the craft port, connect the included USB download cable from your PC to the craft port.

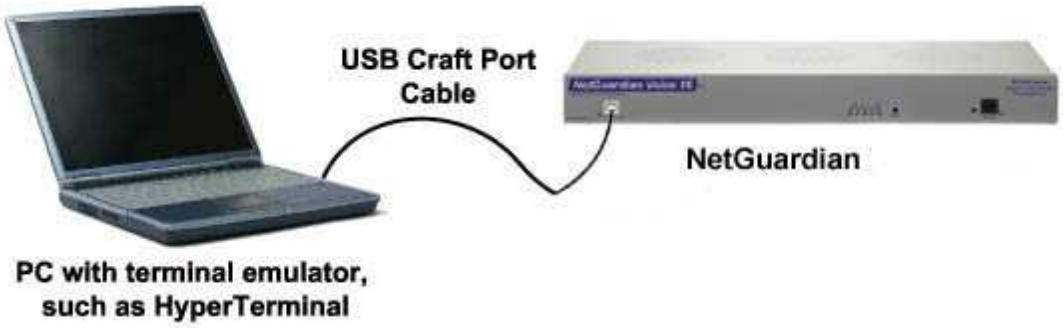
7 Quick Start: How to Connect to the NetGuardian

Most NetGuardian users find it easiest to give the unit an IP address, subnet and gateway through the front craft port (TTY interface) to start. Once these settings are saved and you reboot the unit, you can access it over LAN to do the rest of your databasing via the Web Browser interface.

Alternative option: You can skip the TTY interface by using a LAN crossover cable directly from your PC to the NetGuardian and access its Web Browser. See Section 7.2.

7.1 ...via Craft Port (using TTY Interface)

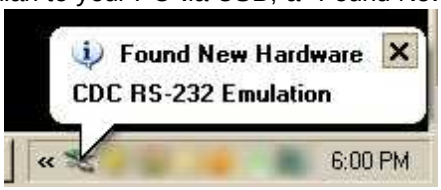
The simplest way to connect to the NetGuardian is over a physical cable connection between your PC's USB port and the unit's USB craft port. **Note:** You must be connected via craft port or Telnet to use the TTY interface. Make sure you are using a standard A-B USB cable (this same cable is commonly used for USB printers) to make a USB craft port connection. We'll be using HyperTerminal to connect to the unit in the following example - however, most terminal-emulating programs are also compatible.



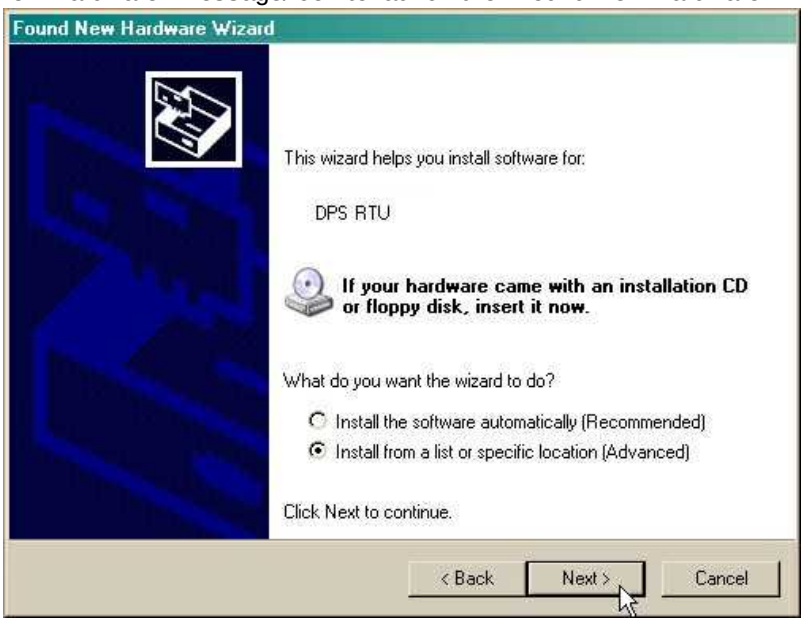
Note: The following images display the setup process done in Windows XP.

The following steps will occur the first time any DPS USB equipment is used on this PC. If you've used a different DPS USB device before and have installed the DPS USB drivers, then **skip to Step 9**.

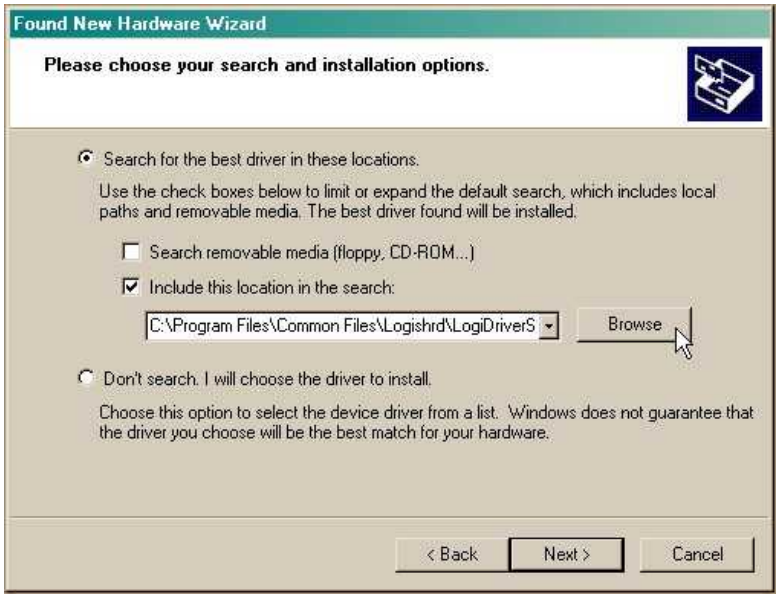
When you first connect the NetGuardian to your PC via USB, a "Found New Hardware" message will appear:



1. Click the "Found New Hardware" message/icon to launch the "Found New Hardware Wizard".

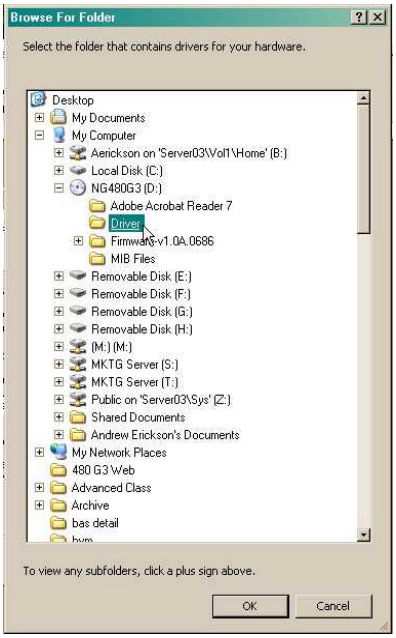

Found New Hardware Wizard
This wizard helps you install software for:
DPS RTU
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

2. Select "Install from a list or specific location (Advanced)"
3. Click "Next >"


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Program Files\Common Files\Logishrd\LogiDriverS
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

4. Select "Search for the best driver in these locations."
5. Insert NetGuardian Resource Disc (CD) into your PC.

6. Click "Browse"

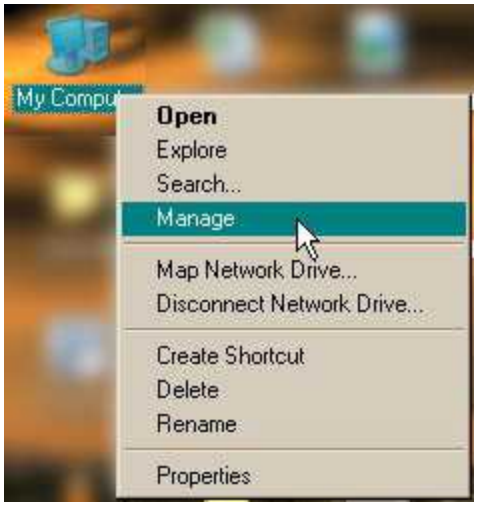


7. Select the "Driver" folder of your NetGuardian Resource Disc Disc (CD) and click "OK"

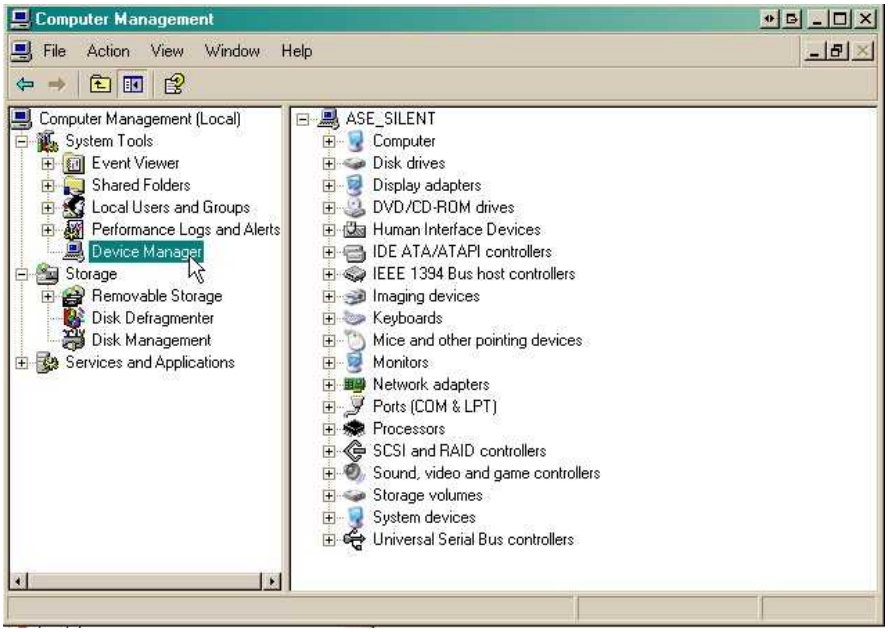
The following message will confirm installation of a new "USB Communications Port"

8. Click "Finish" to close the Wizard.

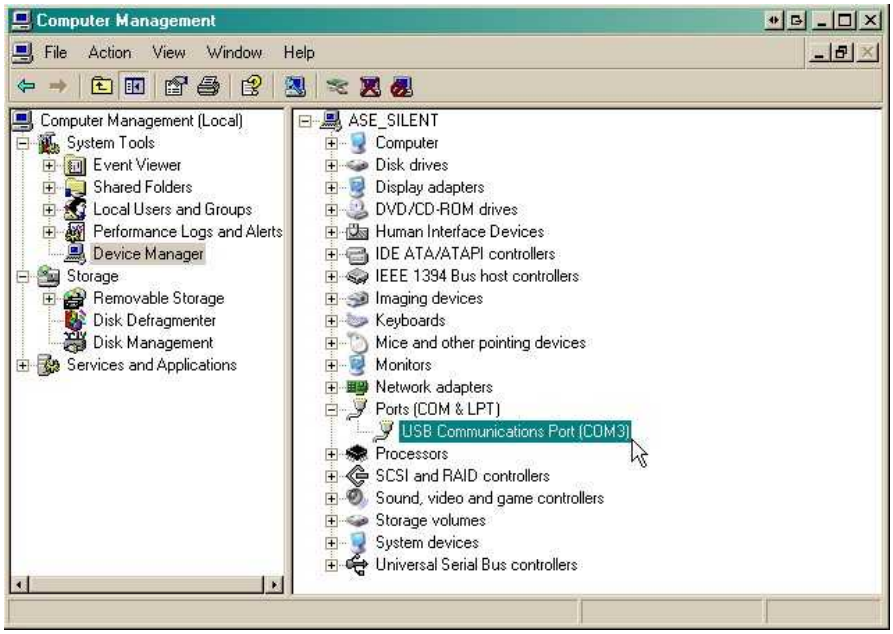
Now that the driver has been installed, a new COM port is being emulated on your PC. Before using hyperterminal, you must confirm the identity of that new COM port (COM1, COM2, COM3...) in the Windows Device Manager.



9. Right-click the "My Computer" icon on your desktop, then click "Manage"



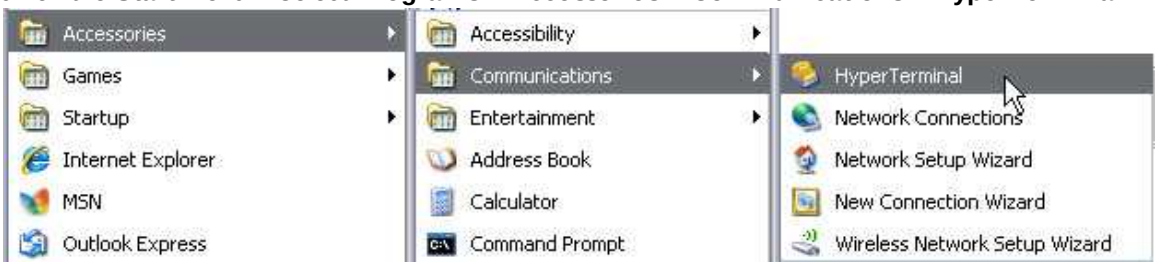
10. Click "Device Manager" in the left pane.



11. Expand the "Ports (COM & LPT)" section in the right pane. Look for "USB Communications Port (COMx)". Note the number of the COM port ("COM3" in the example above).

Now that you know which COM port to use, it's time to launch HyperTerminal (or other terminal software):

12. Click on the **Start** menu **>** select **Programs** > **Accessories** > **Communications** > **HyperTerminal.**



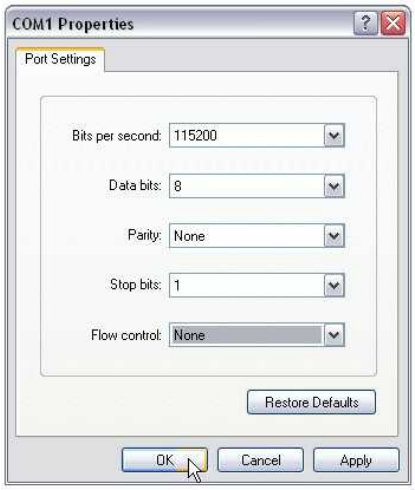
13. At the Connection Description screen, enter a name for this connection. You may also select an icon. The name and icon do not affect your ability to connect to the unit.

14. At the Connect To screen, use the drop-down menu to select the COM port you found earlier in the Device Manager.

15. Select the following COM port options:

- Bits per second: 115200
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: **None**

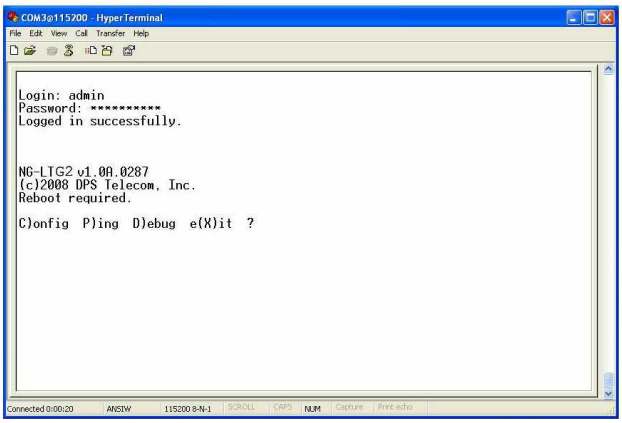
Once connected, you will see a blank, white HyperTerminal screen. Press Enter to activate the configuration menu.

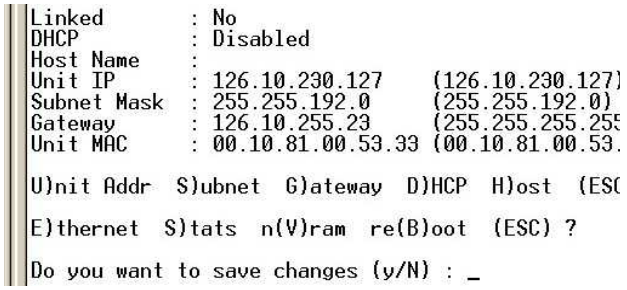


16. When prompted, enter the default user name **admin** and password **dpstelecom**. NOTE**:** If you don't receive a prompt for your user name and password, check the Com port you are using on your PC and make sure you are using the cable provided. Additional cables can be ordered from DPS Telecom.

17. The NetGuardian's main menu will appear. Type C for C)onfig, then E for E)thernet. Configure the unit's IP address, subnet mask, and default gateway.

18. ESC to the main menu. When asked if you'd like to save your changes, type Y for Y)es. Reboot the NetGuardian to save its new configuration.




Linked : No
DHCP : Disabled
Host Name :
Unit IP : 126.10.230.127 (126.10.230.127)
Subnet Mask : 255.255.192.0 (255.255.192.0)
Gateway : 126.10.255.23 (255.255.255.25
Unit MAC : 00.10.81.00.53.33 (00.10.81.00.53.
U)nit Addr S)ubnet G)ateway D)HCP H)ost (ESC
E)thernet S)tats n(V)ram re(B)oot (ESC) ?
Do you want to save changes (y/N) : _

Now you're ready to do the rest of your configuration via LAN. Plug the NetGuardian into your LAN and see the "Logging On to the NetGuardian" section to continue databasing using the Web Browser.

7.2 ...via LAN

Connection through Ethernet port

To connect to the NetGuardian via LAN, all you need is the unit's IP address (Default IP address is 192.168.1.100).

If you DON'T have LAN, but DO have physical access to the NetGuardian, connect using a LAN crossover cable. **NOTE:** Newer PCs should be able to use a standard straight-through LAN cable and handle the crossover for you. To do this, you will temporarily change your PC's IP address and subnet mask to match the NetGuardian's factory default IP settings. Follow these steps:

1. Get a LAN crossover cable and plug it directly into the NetGuardian's LAN port.
2. Look up your PC's current IP address and subnet mask, and write this information down.
3. Reset your PC's IP address to **192.168.1.200**. Contact your IT department if you are unsure how to do this.
4. Reset your PC's subnet mask to **255.255.0.0**. You may have to reboot your PC to apply your changes.
5. Once the IP address and subnet mask of your computer coincide with the unit, you can access the unit via a Telnet session or via Web browser by using the unit's default IP address of **192.168.1.100**.
6. Provision the NetGuardian with the appropriate information, then **change your computer's IP address and subnet mask back to their original settings.**

Now you're ready to do the rest of your configuration via LAN. Plug your LAN cable into the NetGuardian and see Section 9, "Logging On to the NetGuardian" to continue databasing using the Web Browser.

8 TTY Interface

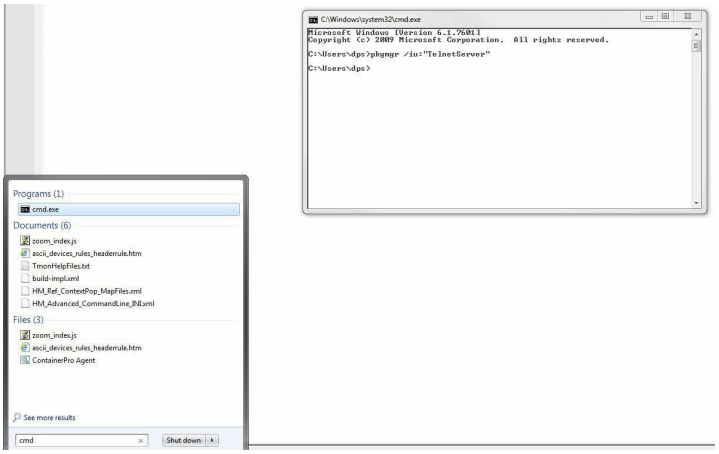
The TTY interface is the NetGuardian's built-in interface for basic configuration. From the TTY interface, you can:

- Edit the IPA, subnet, and gateway
- Configure primary port
- Set unit back to factory defaults
- Set DCP info for T/Mon polling
- Ping other devices on the network
- Debug and troubleshoot

For more advanced configuration tools, please use the Web Browser Interface.

For Telnet, connect to the IP address at port 2002 to access the configuration menus after initial LAN/WAN setup. **Telnet sessions are established at port 2002, not the standard Telnet port** as an added security measure.

If you're using Windows 7, then you'll need to install telnet before you can use the TTY interface. To install telnet, open up your command line (type "cmd" into the search bar in the **Start Menu**). Select **cmd.exe** to run the command line.

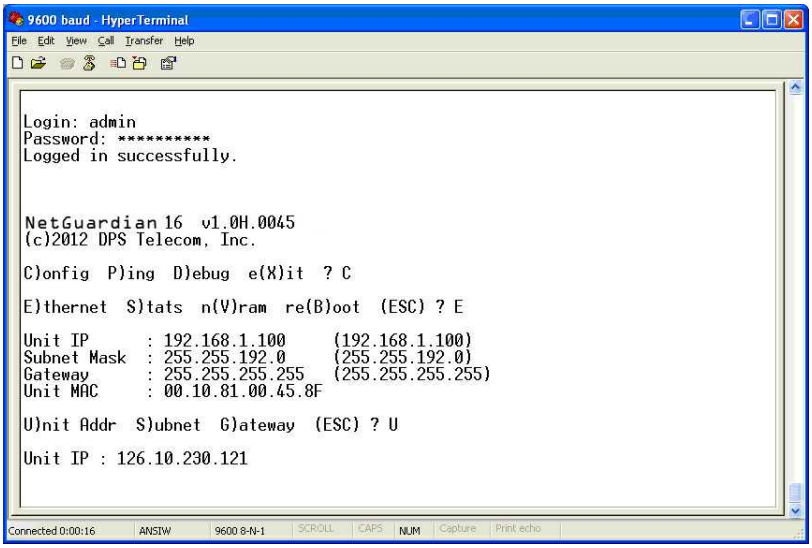


From the command line, type in **pkgmgr /iu:"TelnetServer"** then press **enter**. When the command prompt appears again, the installation is complete.

Menu Shortcut Keys

The letters before or enclosed in parentheses () are menu shortcut keys. Press the shortcut key to access that option. Pressing the ESC key will always bring you back to the previous level. Entries are not case sensitive.

8.1 Configure Serial Port via TTY (M16 G2 Only)



Serial port configuration

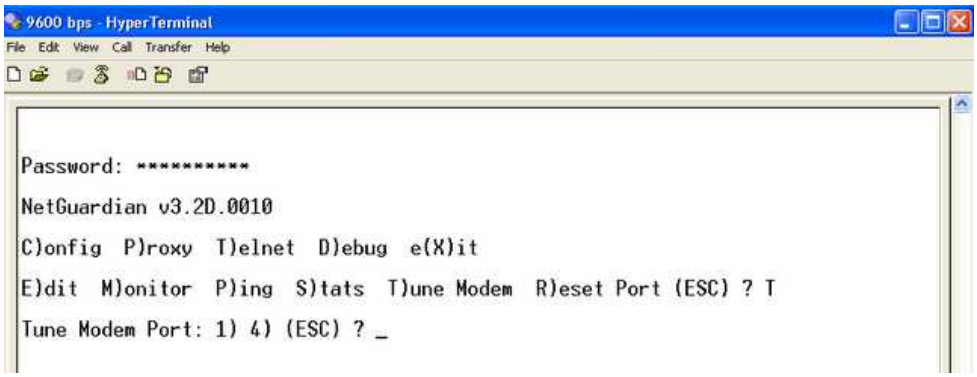
1. To enter configuration setting for the Serial Port, login to the TTY interface and press **C)onfig** > **pr(I)maryPort**.

2. Press the hot keys to toggle through the following options. (* Indicates default settings:)
   NOTE: Default settings may not reflect the primary interface that shipped in the unit.
   - **Port Type**: 232*, 485, 202
   - **Baud**: 115200*, 57600, 19200, 9600, 4800, 2400, 1200
   - **Parity**: None*, even, odd
   - **Stop bits**: 1*, 2

3. Set the RTS head / tail if using 202. (Carrier time) Suggested settings are: head=60; tail=40; 0,0 if using RS232.

8.2 Tune 202 Modem (M16 G2 Only)

Tuning the 202 modem on a NetGuardian M16 G2 can only be done from the TTY interface (using either HyperTerminal through the front craft port or by telnet over LAN on port 2002).


9600 bps - HyperTerminal
File Edit View Call Transfer Help
Password: **********
NetGuardian v3.2D.0010
C)onfig P)roxy T)elnet D)ebug e(X)it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? T
Tune Modem Port: 1) 4) (ESC) ? _

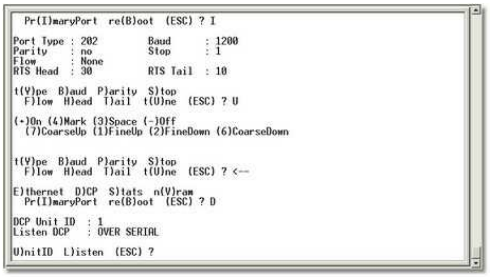
Tune the 202 Modem with the TTY interface

Though no menu options will appear, use the following commands to tune the 202 modem. Each menu option, when chosen, will output the character "A" on screen:

1) Minor Adjust DB+
2) Minor Adjust DB-
3) High Frequency
4) Low Frequency
5) Off
6) Major Adjust DB-
7) Major Adjust DB+
8) Median Frequency (Average of high and low frequency)

After selecting an option (like #1 in this example) for Minor Adjust the DB+ level, the NetGuardian will return a '**+**' command to inform you the task is completed. Each time you hit a number key (1-8), the NetGuardian will a '**+**' on your screen.

8.3 Set DCP Parameters

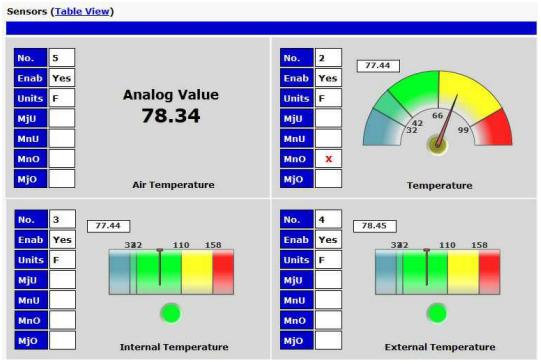

Pr(I)maryPort re(B)oot (ESC) ? I
Port Type : 202 Baud : 1200
Parity : no Stop : 1
Flow : None
RTS Head : 30 RTS Tail : 10
t(Y)pe B)aud P)arity S)top
F)low H)ead T)ail t(U)ne (ESC) ? U
(+)On (4)Mark (3)Space (-)Off
(7)CoarseUp (1)FineUp (2)FineDown (6)CoarseDown
t(Y)pe B)aud P)arity S)top
F)low H)ead T)ail t(U)ne (ESC) ? <--
E)thernet D)CP S)tats n(V)ram
Pr(I)maryPort re(B)oot (ESC) ? D
DCP Unit ID : 1
Listen DCP : OVER SERIAL
U)nitID L)isten (ESC) ?

Setting DCP Parameters

1. Login to the TTY interface and press C)onfig > D)CP.
2. Set the DCP Address (Unit ID).
3. Set the DCP listening type (toggle through the options). Choose over serial, over LAN*, or disabled.

Note: If not using DCP to communicate with a DPS master, set the address to 0 and disable listening.

9 NetGuardian Web Browser



The NetGuardian features a built-in Web Browser Interface that allows you to manage alarms and configure the unit through the Internet or your Intranet. You can quickly set up alarm point descriptions, view alarm status, issue controls, configure paging information, and more.

NOTE: Max number of users allowed to simultaneously access the NetGuardian via the Web is 1.

9.1 Logging on to the NetGuardian

For Web Interface functionality, the unit must first be configured with some basic network information. If this step has not been done, refer to the section "Quick Start: How to Connect to the NetGuardian" for instructions on initial configuration setup.

1. To connect to the NetGuardian from your Web browser, enter its IP address in the address bar of your web browser. It may be helpful to bookmark the logon page to avoid entering this each time.

2. After connecting to the unit's IP address, enter your login information and click OK. **NOTE:** The factory default username is "***admin***" and the password is "***dpstelecom***".

Enter your password to enter the device's Web Browser Interface

3. In the left frame you will see the **Monitor** menu (blue) and **Edit** menu (green) The Monitor menu links are used to view the current status of alarms. The Edit menu is used to change the unit's configuration settings. All the software configuration will occur in the **Edit** menu. The following sections provide detailed information regarding these functions.

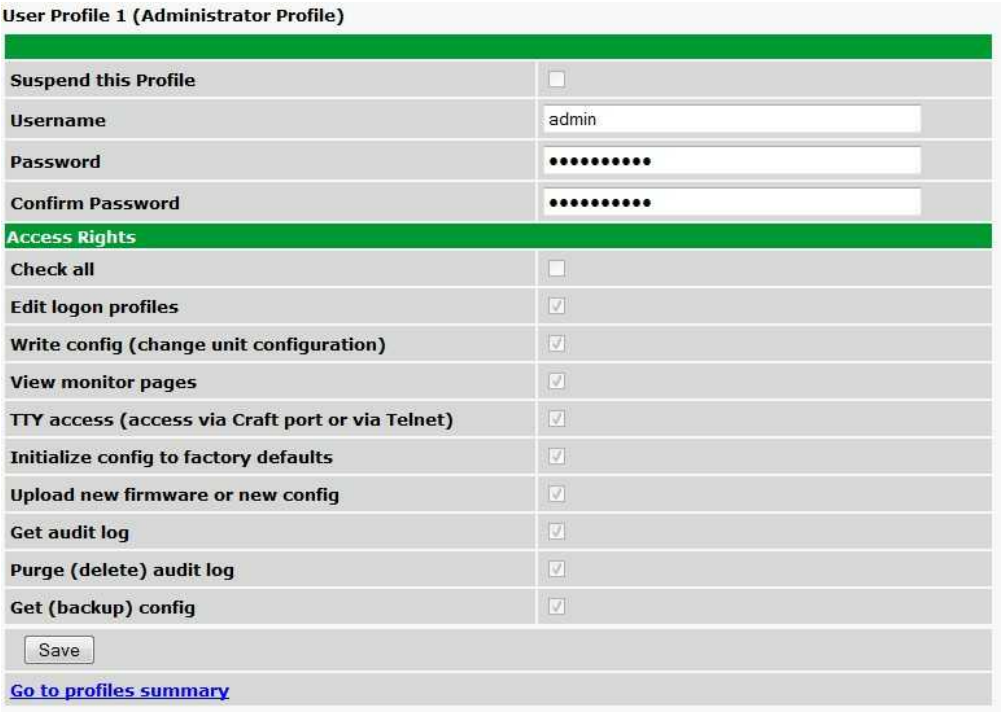
Hot Tip! The max. number of users allowed to simultaneously access the NetGuardian via the Web is 1.

9.1.1 Changing the Default Password

The password can be configured from the **Provisioning** > **User Profiles** screen. The minimum password length is four characters; however, DPS recommends setting the minimum password length to at least five characters.

Use the following steps to change the logon password:

1. From the **Edit** menu select **System**.
2. Enter the new user name in the **User** field.
3. Enter the new password in the **Password** field.
4. Click the **Save** button.

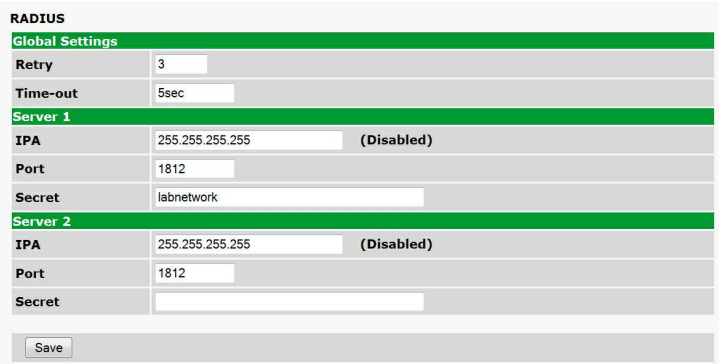


Global System Settings section of the Provisioning > System menu

9.2 Using RADIUS Authentication (Available as of Firmware 5.01)

RADIUS (Remote Authentication Dial In User Service) is an industry-standard way to manage logins to many different types of equipment in one central location. The NetGuardian V16 G2 connects to your central RADIUS server. Every time a device receives a login attempt (usually a username & password), it requests an authentication from the RADIUS server. If the username & password combination is found in the server's database, an affirmative "access granted" reply is sent back to the unit device, allowing the user to connect.

Note: Radius is only available with the Firmware version 5.01 or higher.



RADIUS configuration screen

*RADIUS server prompt for Username **and** Password.*

Global Settings	
Retry	Enter the number of times the RADIUS server should retry a logon attempt
Time-out	Enter the number of seconds before a logon request is timed out
Servers 1 / 2	
IPA	Enter the IP address of the RADIUS server
Port	Port 1812 is an industry-standard port for using RADIUS
Secret	Enter the RADIUS secret in this field

After successfully entering the settings for the RADIUS server, the NetGuardian Web Browser will prompt users for both a Username and Password, which will be verified using the information and access rights stored in the RADIUS database.

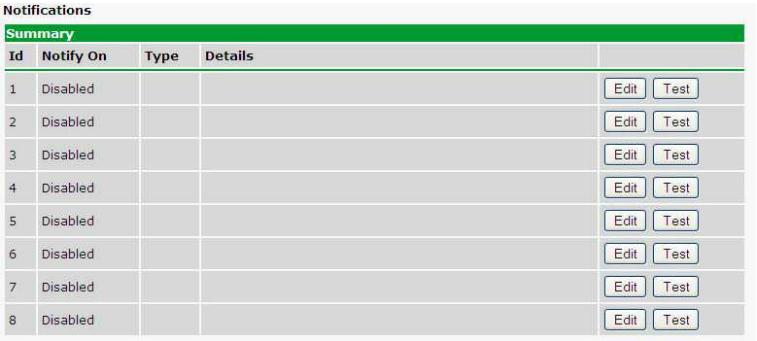
RADIUS logons are **case-sensitive**. If the RADIUS server is unavailable or access is denied, the local user profiles will work via craft port access only. Also, the "dictionary.dps" files (included on the Resource Disk) needs to be loaded on the RADIUS server for access-right definition. If RADIUS is enabled on the NetGuardian, local authentication will be invalid through the web and can only work via craft port.

10 NetGuardian - Quick Turn Up

The next 4 sections of this manual will walk you through some of the most common tasks for using the NetGuardian. You will learn how to send email notifications, and send SNMP traps to your alarm master - all using the Web browser. For details on entering your settings into each Web browser menu, the section "Provisioning Menu Field Descriptions" section.

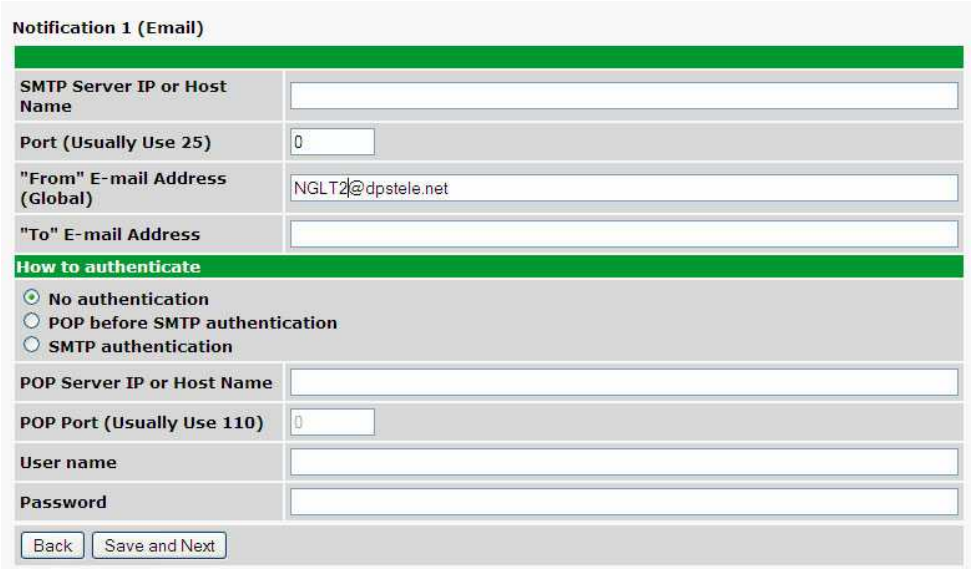
10.1 How to Send Email Notifications

1. Click on the **Notifications** button in the **Provisioning** menu. You can setup as many as 8 different notifications. Begin the setup "wizard" by clicking **Edit** for a notification number. In this example, we'll setup Notification 2 to send emails.



2. At the **Notification Setting** screen, use the drop down box to set what events to use for this notification. Now, select the **Send Email Notification** button and click **Save and Next**.

3. At the **Email Notification** screen, you'll enter your email server settings. Enter the **IP address** or **Host Name** of your email server. Enter the **Port Number** (usually 25) and the **"To" Email Address** of the technician that will receive these emails. If authentication is required, chose the type and fill in the necessary fields. Click **Next**.

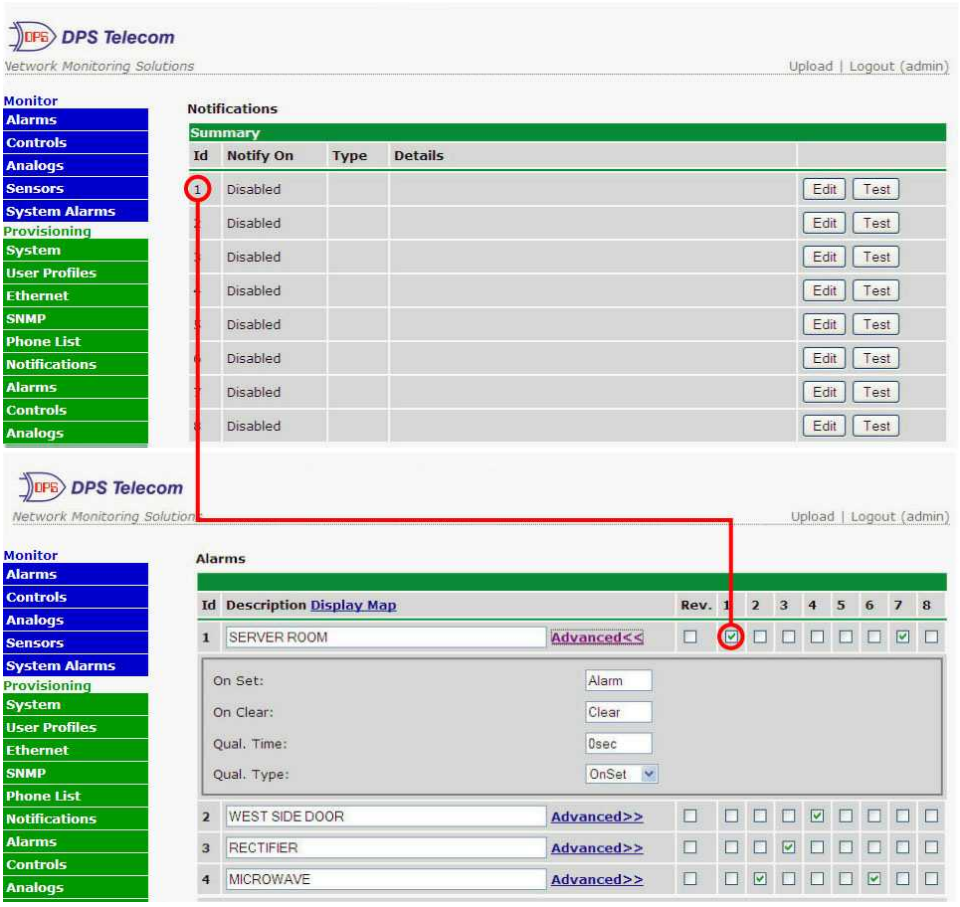


4. At the **Schedule** screen, you'll select the exact days/times you want to receive email notifications. You can set 2 schedules per notification. For example, you may want to receive notifications at certain times during the week, and at different hours on the weekend. Use the check boxes to select the days of the week, and select the time from the drop down menus. Click **Finish.** To try a test notification, click the **Test** button (See next step.)

Notification 1 (Schedule)
Id Sun Mon Tue Wed Thu Fri Sat Notification Time
1
Any Time
12 h 0 min AM to 11 h 59 min PM
2
Any Time
12 h 0 min AM to 11 h 59 min PM
Back
Save and Finish

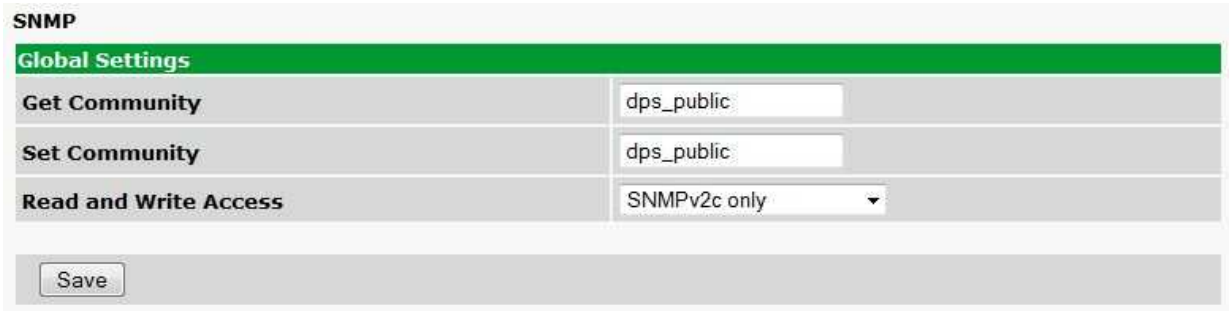
5. If you chose to test the email notification you've just setup, you will prompted with a pop up . Click **OK** to send a test email alarm notification. Confirm all your settings by checking your email to see if you've received it. **NOTE:** This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point. See the next step.

6. Now you will associate this notification to an alarm (system, base, analog, etc.) You have 8 notification devices available to use. In the image below, you might assign **Notification Device 1** to **Alarm 1**. This means that you would receive an email notification when an alarm for **Alarm 1** (SERVER ROOM**)** occurs.



10.2 How to Send SNMP Traps

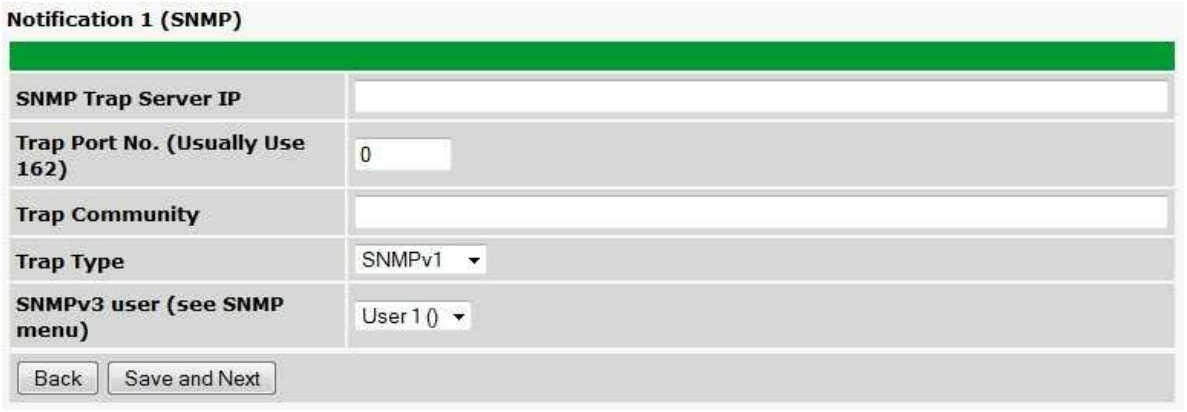
1. Click on the **SNMP** button in the **Provisioning** menu. Enter the **SNMP GET** and **SNMP SET** community strings for your network, then click **Save**. The typical SNMP SET and GET community strings for network devices is "public". As an added security measure, we've made our default "dps_public".



2. Click on the **Notifications** button in the **Provisioning** menu. You can setup as many as 8 different notifications. Begin the setup "wizard" by clicking **Edit** for a notification number. In this example, we'll setup Notification 4 to send SNMP traps to your alarm master.

3. At the **Notification Setting** screen, use the drop down box to set what events to use for this notification. Now, select the **Send SNMP Notification** button and click Next.

4. At the **SNMP Notification** screen, you'll enter your network's SNMP settings. Enter the **IP address** of your SNMP Trap Server. Enter the **Trap Port Number** (usually 162) and the **Trap Community** password. Click **Save and Next**.



5. At the **Schedule** screen, you'll select the exact days/times you want to receive SNMP notifications. You can set 2 schedules per notification. For example, you may want to receive notifications at certain times during the week, and at different hours on the weekend. Use the check boxes to select the days of the week, and select the time from the drop down menus. Click **Save and Finish.** To try a test notification, click the **Test** button (See next step.)

6. If you chose to test the email notification you've just setup, you will prompted with a pop up . Click **OK** to send a test SNMP alarm notification. Confirm all your settings by checking your alarm master to see if the SNMP trap was received.

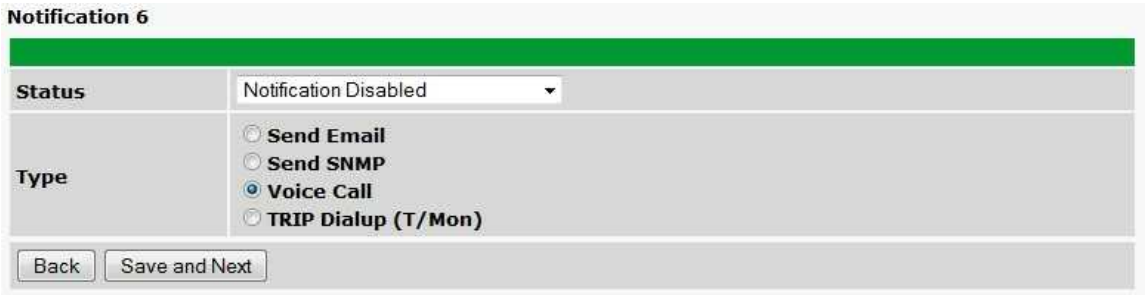
NOTE: This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point. See Step 6 in "How to Send Email Notifications" for more detail.

10.3 How to Send Call (Voice) Notifications (V16 G2 Only)

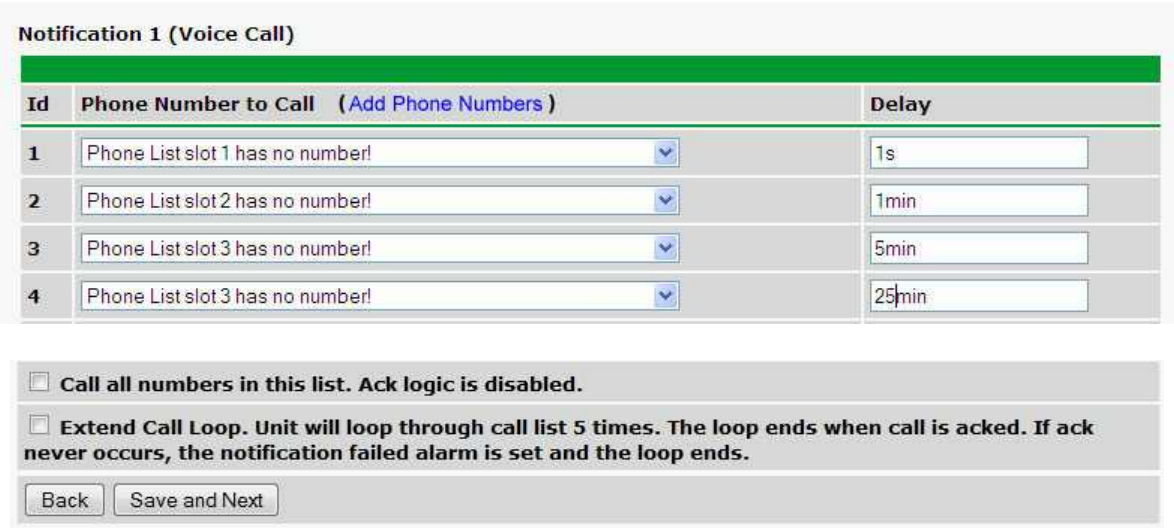
The following instructions will guide you through the process of setting up the unit to call your phone when alarms are triggered. Using your custom call list, the NetGuardian V16 G2 will begin the calling tree to notify the correct personnel, according to their schedules.

1. Click on the **Notifications** button in the **Provisioning** menu. You can setup as many as 8 different notifications. Begin the setup "wizard" by clicking on **Edit** for a notification number. In this example, we'll setup Notification 6 to send an voice alert.

2. At the **Notification Setting** screen, select the conditions you want to be notified of from the drop down: **Notify on both Alarms and Clears, Notify on Alarms only, Notify on Clears only.** (Selecting Notification Disabled means you will not receive any type of alerts.) Select **Voice Call** and click **Save and Next**.



3. At the next screen, you'll select the phone numbers the NetGuardian should call when this particular alarm is triggered. Make your selections, in order, using the drop down lists. These are the phone numbers you entered in the **Provisioning > Phone List** menu. To jump to this menu and add more numbers, click the **Add Phones** link in the title bar. In the **Delay** field, enter the amount of time that should pass before the NetGuardian attempts to call the next person on the phone tree. (s = seconds; m = minutes)


Notification 1 (Voice Call)
Id
Phone Number to Call (Add Phone Numbers)
Delay
1
Phone List slot 1 has no number!
1s
2
Phone List slot 2 has no number!
1min
3
Phone List slot 3 has no number!
5min
4
Phone List slot 3 has no number!
25min
Call all numbers in this list. Ack logic is disabled.
Extend Call Loop. Unit will loop through call list 5 times. The loop ends when call is acked. If ack never occurs, the notification failed alarm is set and the loop ends.
Back
Save and Next

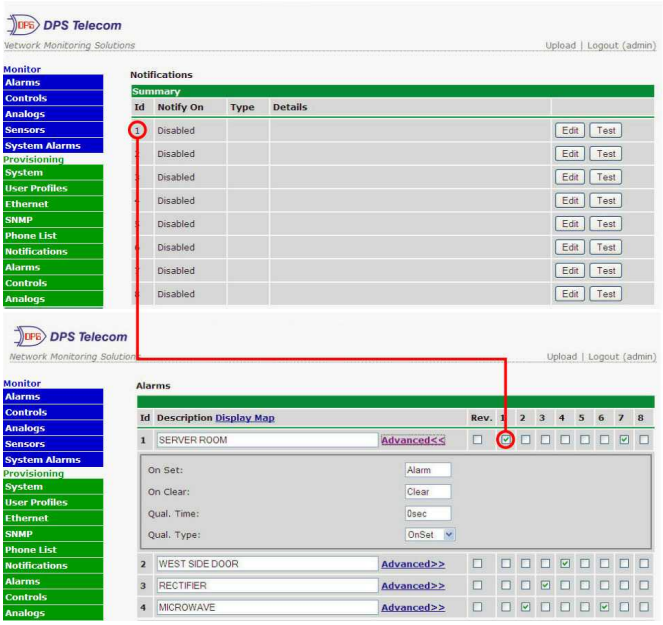
NOTE: At the bottom of this screen, you may choose the "Call all numbers" box to disable acking. When checked, the unit will call all numbers in the list, instead of stopping when the alarm or clear is acknowledged.

5. At the **Schedule** screen, you'll select the exact days/times you want to receive notifications. You can set 2 schedules per notification. For example, you may want to send after hours or at certain times during the week, and at different hours on the weekend. Use the check boxes to select the days of the week, and select the time from the drop down menus. Click **Save and Finish.** To try a test notification, click the **Test** button (See next step.)

Notification 1 (Schedule)
Id Sun Mon Tue Wed Thu Fri Sat Notification Time
1
Any Time
12 h 0 min AM to 11 h 59 min PM
2
Any Time
12 h 0 min AM to 11 h 59 min PM
Back
Save and Finish

6. If you chose to test the notification, you will see the popup below. Click **OK** to test a voice notification. **NOTE:** This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point.

7. Now you will associate this notification to an alarm {system, base, analog, etc.) You have 8 notification devices available to use. In the image below, you might assign **Notification Device 1** to **Alarm 1**. This means that you would receive an email notification when an alarm for SERVER ROOM occurs. Remember that Notification #1 in the Notifications menu is the same as N1 on the alarms page.

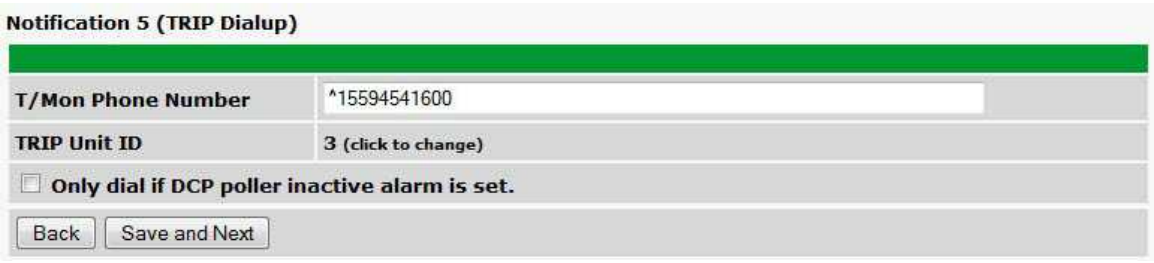


10.4 How to Send TRIP Notifications (V16 G2 Only)

1. Click on the **Notifications** button in the **Provisioning** menu. You can setup as many as 8 different notifications. Begin the setup "wizard" by clicking on **Edit** for a notification number. In this example, we'll setup Notification 8 to send an voice alert.

2. At the **Notification Setting** screen, select the conditions you want to be notified of from the drop down: **Notify on both Alarms and Clears, Notify on Alarms only, Notify on Clears only.** (Selecting Notification Disabled means you will not receive any type of alerts.) Select **Trip Dialup (T/Mon)** and click Next.

3. At the next screen, you'll select the phone number the NetGuardian should call when this particular alarm is triggered. Enter the T/Mon's phone number and chose if you want the NetGuardian to dial only if the DCP poller inactive is selected. Then click **Save and Next**.



5. At the **Schedule** screen, you'll select the exact days/times you want to receive notifications. You can set 2 schedules per notification. For example, you may want to send after hours or at certain times during the week, and at different hours on the weekend. Use the check boxes to select the days of the week, and select the time from the drop down menus. Click **Save and Finish.** To try a test notification, click the **Test** button (See next step.)

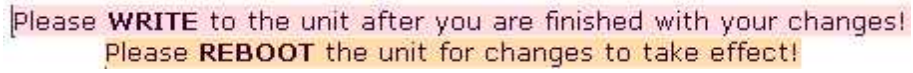
6. Click **Test** to send a test voice notification. **NOTE:** This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point (See step 6 of the "How to Send Email Notifications" section).

11 Provisioning Menu Field Descriptions

NetGuardian configuration is performed from the **Provisioning** menus, the menu options in green on the left-side of the web interface. The following pages provide a brief description of the options available in each menu.

Saving Configuration Changes to the NetGuardian:
At the bottom of each screen you access from the **Provisioning** Menu, you will see a **Save** button. Clicking Save will cache your changes locally. The web interface will then prompt you to either **Write** your changes to the unit or **Reboot** the unit for changes to take effect in the top-left corner of your browser. The relevant options will be highlighted in the **Device Access** options**.**

Note: If the unit prompts you to both Write changes to the unit **and** Reboot, you will Write your changes first. Rebooting before without writing to the unit (if a Write is required) will cause you to lose your configuration changes.

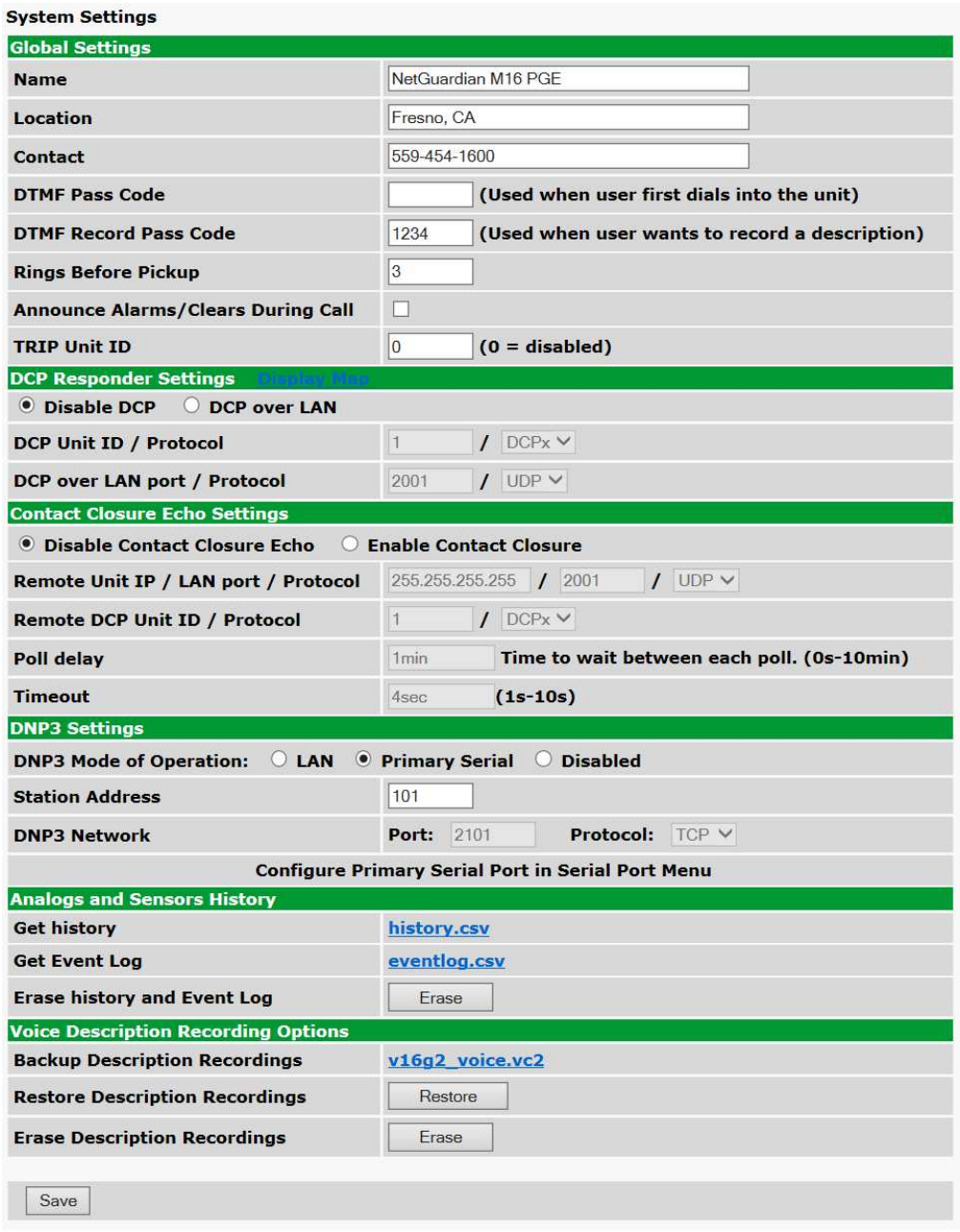


Status messages on the NetGuardian Device Access menu, inform you how to implement your changes

The control menu highlights items that must be completed for your changes to take effect

11.1 System

From the **Provisioning** > **System** menu, you will configure and edit the global system, call, T/Mon and control settings for the NetGuardian.

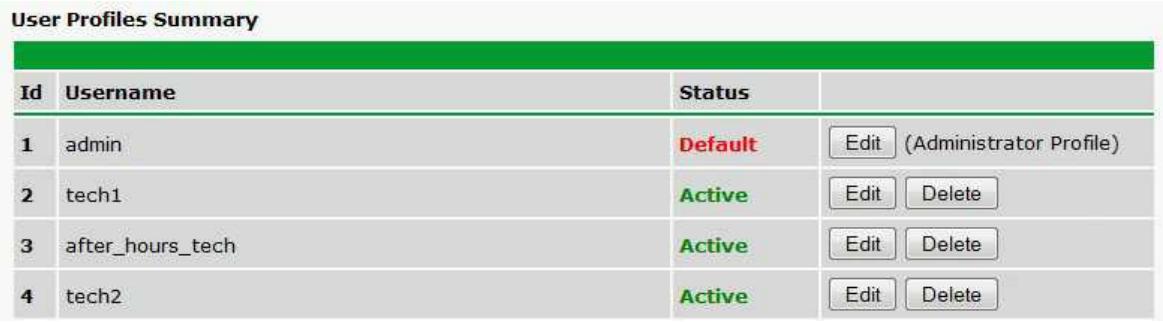


The Provisioning > System menu

Global System Settings	
Name	A name for this NetGuardian unit. {Optional field)
Location	The location of this NetGuardian unit. {Optional field)
Contact	Contact telephone number for the person responsible for this NetGuardian unit. {Optional field)
DTMF Pass Code (V16 G2 Only)	Used to login to the unit via telephone to hear alarm notifications. Only number entries are valid.
DTMF Record Pass Code (V16 G2 Only)	Needed to access rights to record or re-record the custom (voice) alarm detail. Only number entries are valid.
Rings Before Pickup (V16 G2 Only)	Used to change the number of rings before the unit picks up when dialing into it.
Announce Alarms/ Clears During Call (V16 G2 Only)	Check this box to receive an audible notification if the alarm state changes during a call.
TRIP Unit ID (V16 G2 Only)	The site number to use when communicating over dialup to T/Mon.
DCP Responder Settings *(For use with T/Mon)*	
DCP Unit ID / Protocol	User-definable ID number for the target unit (DCP Address) and desired protocol.
DCP LAN	Enter the DCP port for the target unit (UDP/TCP port) and desired protocol.
Contact Closure Echo Settings	
Disable/Enable (V16 G2 Only)	Enable or Disable the Contact Closure Echo feature. You need two separate RTUs in order to use contact closure echoes.
Remote Unit IP / LAN Port / Protocol (V16 G2 Only)	Enter the IP Address of the target unit. You can find this IP in the ethernet settings of the target device. The LAN Port will specify the communication line that will be used to talk to the unit. The Protocol will define the format that data will be sent and received. The LAN Port should match the DCP Unit's LAN Port located in the DCP Responder section above. The Protocol should match the device you are polling.
Remote DCP Unit ID / Protocol (V16 G2 Only)	Enter the DCP Unit ID of the device you want to monitor. This should match the DCP Unit ID located in the DCP Responder section above. The Protocol will define the format that data will be sent and received.
Poll delay (V16 G2 Only)	How often the NetGuardian will poll the DCP Responder unit. The poll delay is the interval of time between polls.
Timeout (V16 G2 Only)	How long the NetGuardian will wait to receive an alarm before it times out. If the NetGuardian is unable to communicate with the responder unit, and times out three times in a row, a system alarm will become enabled.
DNP3 Settings	
DNP3 Mode of Operation	Allows user to choose between sending DNP3 requests over LAN, serially, or to disable the feature.
Station Address	This is the DNP3 polling address of the NetGuardian. This calue can range between 0-65519.
DNP3 Network	Allows user to select the part for DNP3 polling over LAN. This value can range between 1-32767. User can also choose between TCP and UDP protocol.
Analogs and Sensors History	
Get History	Download a log of all configured analog and sensor values.
Get Event Log	Download a log of all alarms and events.
Erase History	Erase the log of all configured analog and sensor values.
Voice Description Recording Options	
Backup Description Recordings (V16 G2 Only)	Use this option to save your voice description recordings to your computer.
Restore Description Recordings (V16 G2 Only)	Use this option to upload your previously saved voice description recordings.
Erase Description Recordings (V16 G2 Only)	Use this option to erase all current voice description recordings.

11.2 User Profiles

Clicking **User Profiles** gives you access to modify the default username and password, and to edit the administrator profile and create up to 9 additional unique user profiles, each with different access rights to the NetGuardian's web interface.

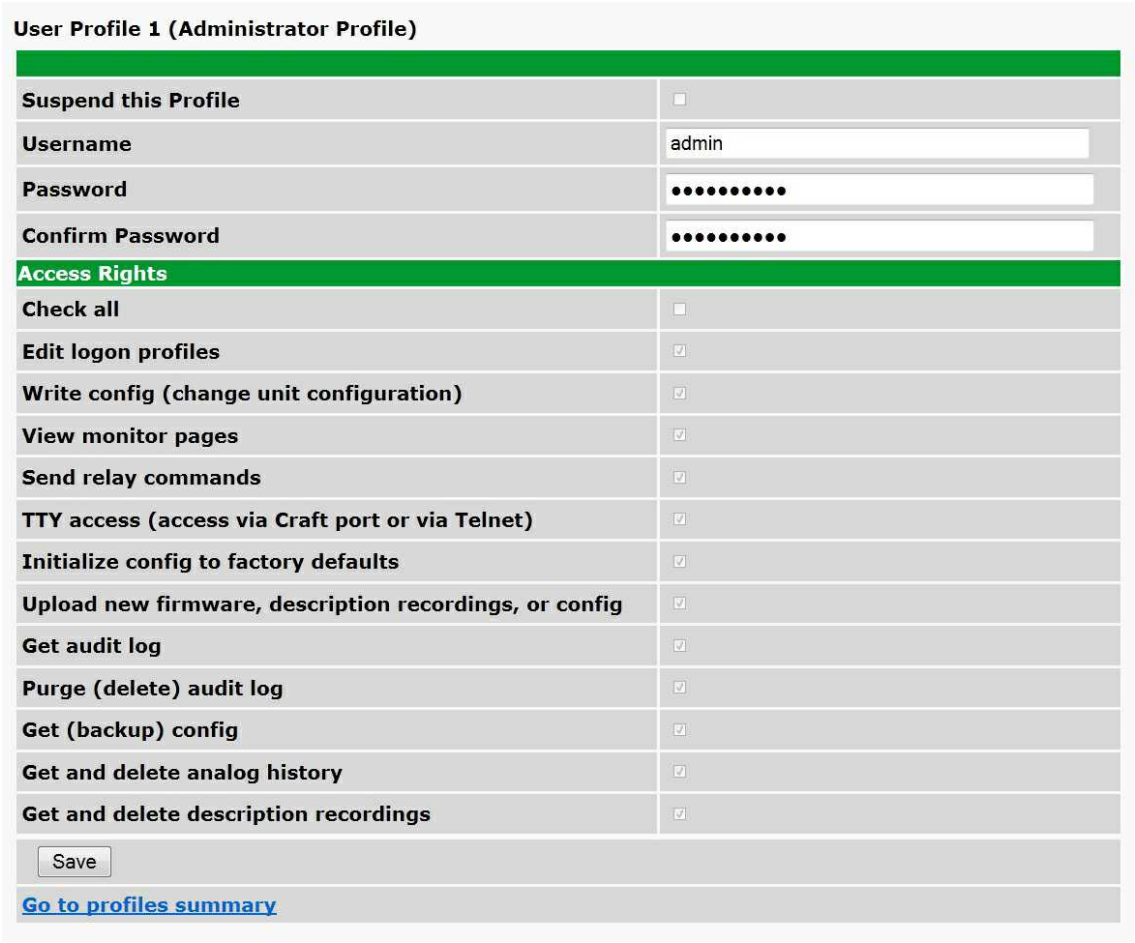


User Profiles Summary

Id	Username	Status	
1	admin	Default	Edit (Administrator Profile)
2	tech1	Active	Edit Delete
3	after_hours_tech	Active	Edit Delete
4	tech2	Active	Edit Delete

Configure access privileges for users in the User Profile screen

Note: The first user profile in the User Profiles menu is the Administrator's Profile. Access rights for the administrator's profile are all enabled and may not be disabled, nor can the profile be deleted or suspended. This is a precaution to prevent a situation in which an access right is disabled for all users. You may still edit the **Username, Password, and Active Days** fields for the Administrator Profile.



User Profile 1 (Administrator Profile)

Suspend this Profile	☐
Username	admin
Password	••••••••••
Confirm Password	••••••••••
Access Rights	
Check all	☐
Edit logon profiles	☑
Write config (change unit configuration)	☑
View monitor pages	☑
Send relay commands	☑
TTY access (access via Craft port or via Telnet)	☑
Initialize config to factory defaults	☑
Upload new firmware, description recordings, or config	☑
Get audit log	☑
Purge (delete) audit log	☑
Get (backup) config	☑
Get and delete analog history	☑
Get and delete description recordings	☑

Save

Go to profiles summary

The User Profiles screen allows you control user functionality

To create or edit any of the 10 user profiles (including the default), click the **Edit** button. From there, you can change all configurable settings for a user profile.

	User Profile
Suspend this Profile	If this box is checked, the profile will not be able to access the NetGuardian.
Username	Enter a username or a user description
Password	Enter a unique user password **Note:** All passwords are AES 128 encrypted.
Confirm Password	Re-enter the password.
Access Rights	
Check all	Enables all Access Rights
Edit logon profiles	Enables the user to add/modify user profiles and password information.
Write Config (change unit configuration)	Enables the user to change the unit config by accessing the **Write** feature in the control menu.
View monitor pages	Allows the user to access Monitor menu options.
Send relay commands	Allows the user to send commands to operate the device's control relays.
TTY access (access via Craft port or via Telnet)	Grants the user access to the unit via TTY interface (via craft or telnet).
Initialize config to factory defaults	Allows the user to use the **Initialize** option in the **Device Access** menu, resetting the NetGuardian V16 G2 to factory default settings. All user settings will be lost.
Upload new firmware, description recordings, or config	Allows the user to upload firmware or backed-up configuration files.
Get audit log	Allows the user to access the Audit Log (**Get Log** command).
Purge (delete) audit log	Allows the user to deletes the existing audit log.
Get (backup) config	Backs-up all user profile configuration settings.
Get and delete analog history	Allows the user to access and delete the analog and sensor history.
Get and delete description recordings	Allows the user to access and delete the recorded analog and sensor history.

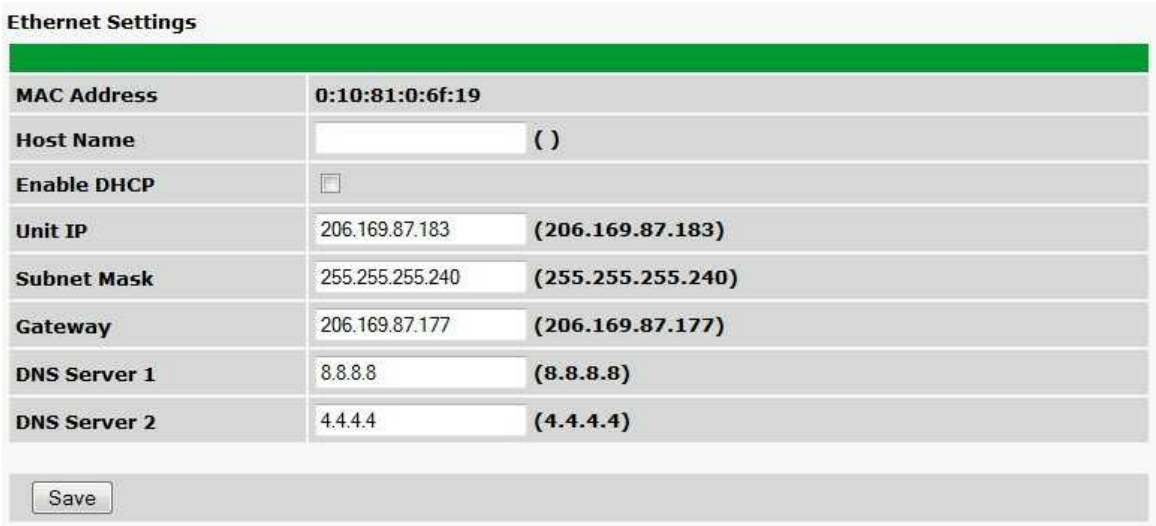
User profile field descriptions

Once you've finished configuring a profile, click **Save** to store your changes locally.

To access another profile, simply click **Go to profiles summary** at the bottom of the page. You may also navigate away from the user profiles screen at any time by clicking any of the menu options on the left side of the screen.

11.3 Ethernet

The **Edit** > **Ethernet** menu allows you to define and configure Ethernet settings.



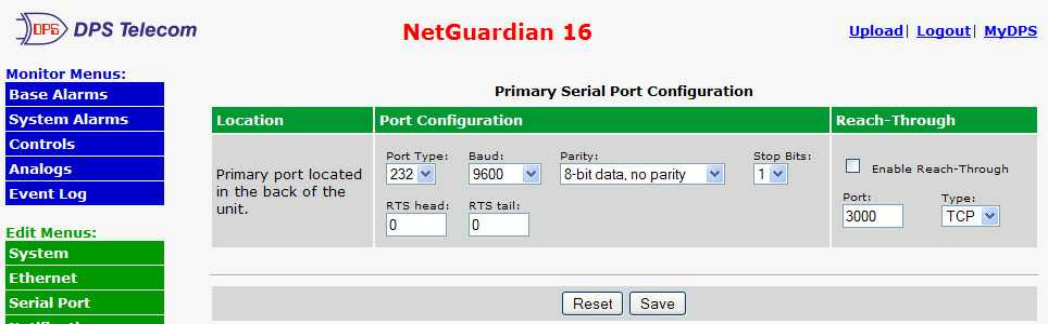
The Provisioning > Ethernet menu

Ethernet Settings	
MAC Address	Hardware address of the NetGuardian. (Not editable - For reference only.)
Host Name	Used only for web browsing. Example: If you don't want to remember this NetGuardian's IP address, you can type in a name is this field, such as NG16. Once you save and reboot the unit, you can now browse to it locally by simply typing in "NG16" in the address bar. (no "http://" needed).
Enable DHCP	Used to turn on Dynamic Host Connection Protocol. NOT recommended, because the unit is assigned an IP address from your DHCP server. The IP you've already assigned to the unit becomes inactive. Using DHCP means the unit will NOT operate in a T/Mon environment.
Unit IP	IP address of the NetGuardian.
Subnet Mask	A road sign to the NetGuardian, telling it whether your packets should stay on your local network or be forwarded somewhere else on a wide-area network.
Gateway	An important parameter if you are connected to a wide-area network. It tells the NetGuardian which machine is the gateway out of your local network. Set to 255.255.255.255 if not using. Contact your network administrator for this info.
DNS Server 1	Primary IP address of the domain name server. Set to 255.255.255.255 if not using.
DNS Server 2	Secondary IP address of the domain name server. Set to 255.255.255.255 is not using.

Note: DNS Server settings are required if a hostname is being used for ping targets.

11.4 Serial Ports (M16 G2 Only)

The **Provisioning > Serial Port** menu allows you to change settings depending on the port type of your NetGuardian. From this menu, you can select a mode of operation and enable reach-through serial port functionality.

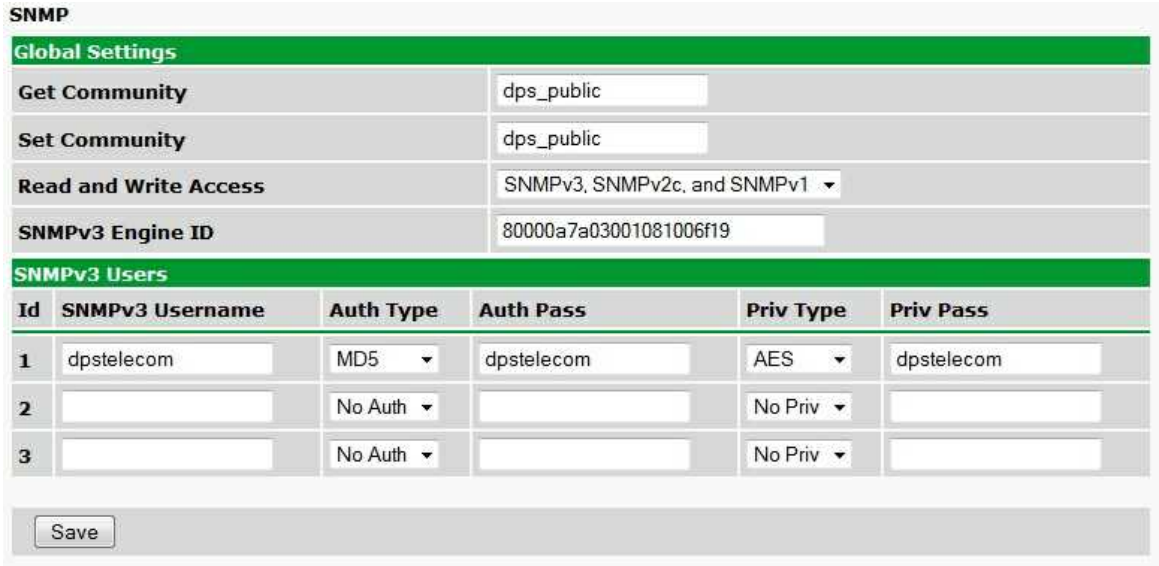


The Provisioning > Serial Ports menu

Location	
A reminder that your primary serial port is located on the back of the NetGuardian chassis.	
Port Configuration	
Port Type	Select the serial port for your build of the NetGuardian. Choose from 232, 485...
Baud, Parity, and Stop Bits	Select the appropriate settings from the drop-down menu.
RTS Head	Only used if your NetGuardian was built with a 202 modem. The most commonly used value is 30.
RTS Tail	Only used if your NetGuardian was built with a 202 modem. The most commonly used value is 10.
Reach-Through	
Enable Reach-through	Checking this box enables the port to be used as a terminal server. Most commonly used to Telnet through the port over LAN to a hub, switch, or router. From a command prompt, type the following *(note the spaces between each entry)*: telnet [IP address] [port] **Example**: telnet 192.168.1.100 3000
Port	Port number used for reach-through to a serial device.
Type	Select TCP or UDP traffic to be passed through to a serial device.

11.5 SNMP

The **Provisioning** > **SNMP** menu allows you to define and configure the SNMP settings.



SNMP Menu

Global Settings	
Get Community	Community name for SNMP requests.
Set Community	Community name for SNMP SET requests.
Read and Write Access	This field defines how the NetGuardian unit may be accessed via SNMP. This can be set to the following: • Access Disabled- Restricts all access to unit via SNMP • SNMPv2c only- Allows SNMPv2c access only • SNMPv2c and SNMPv1-Only- Allows SNMPv1 and SNMPv2c access • SNMPv3, SNMPv2c and SNMPv1- Allows SNMPv3, SNMPv2c and SNMPv1 access
SNMPv3 Engine ID	Engine ID for the SNMP v3 agent.
ID	The user number designated for a v3-user (up to 3 users supported.)
SNMPv3 Username	The name of the user for which an SNMPv3 management operation is performed.
Auth Type	Authorization Type: No Auth, MD5 algorithm or SHA1 algorithm.
Auth Pass	This field contains the password used with either MD5 or SHA authentication algorithms.
Priv Type	Determines the privacy type: No Privacy, DES encryption or AES encryption.
Priv Pass	This field contains the password used with privatisation encryption.

Fields in the Provisioning > SNMP settings

11.6 Phone List (V16 G2 Only)

Up to 32 phone numbers can be stored for the NetGuardian V16 G2 to call with alarm information. This list is unsorted and should include all phone numbers for those that need to know and/or respond to alarms. When setting up a voice call notification later, you can designate which of these individuals to call about which alarms, in your desired order.

Phone List

Slot	Enab	Description	Phone Number
1	☑	Tech1	559-454-1600
2	☑	Tech2	800-622-3314
3	☑	Tech3	800-693-0351

The Provisioning > Phone List menu

11.7 Notifications

From the initial **Provisioning** > **Notifications** menu, you will see which of the 8 notifications are enabled, their server, and schedule. Click on the **Edit** link for one of the notifications to begin configuration.

Once you've chosen which notification you want to setup, check the **Enable Notification** to turn it "on." Then choose a notification method, either email, SNMP, voice call, or TRIP Dialup (T/Mon).

11.7.1 Notification Settings

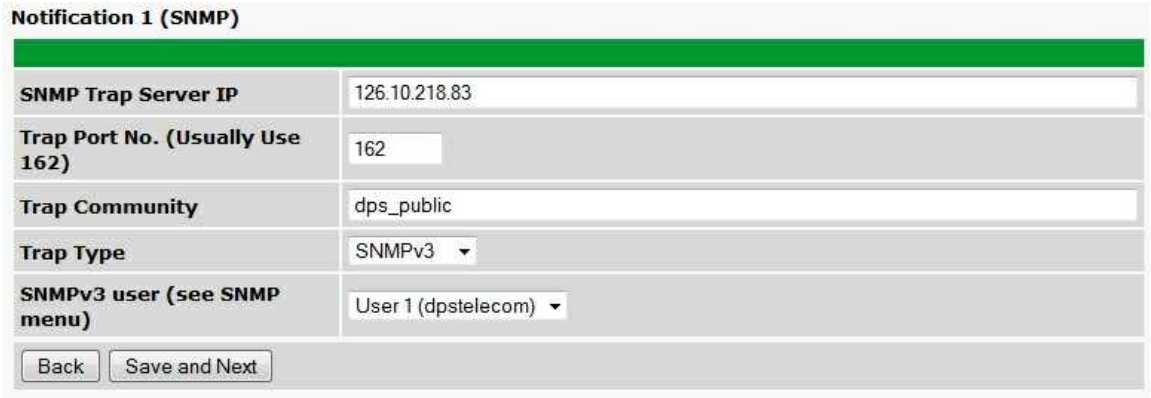
Email Notification Fields

Editing Email Notification Settings

Email Notification	
SMTP Server IP or Host Name	The IP address of your email server.
Port Number	The port used by your email server to receive emails, usually set to 25.
Use SSL	Check this box to use SSL encryption. Currently this feature has been tested with Gmail. To send with Gmail SMTP server, do the following: • SMTP Server IP or Host Name should be set to "smtp.gmail.com" • Port number must be set to 465. • SMTP authentication radio button must be selected. • User name and password (below under "How to Authenticate") are the user name and password for the Gmail account in use.
"From" E-mail Address	Displays the email address (defined in the Edit menu > System) that the NetGuardian will send emails from. Not editable from this screen.
"To" E-mail Address	The email address of the person responsible for this NetGuardian, who will receive email alarm notifications.
User Name	User name for the account being used.
Password	Password for the account being used.

Note: If you want to send authenticated emails, click the appropriate radio button. If you enable POP authentication, you will have to enter the relevant authentication information the fields below.

SNMP Notification Fields



Editing SNMP notification settings

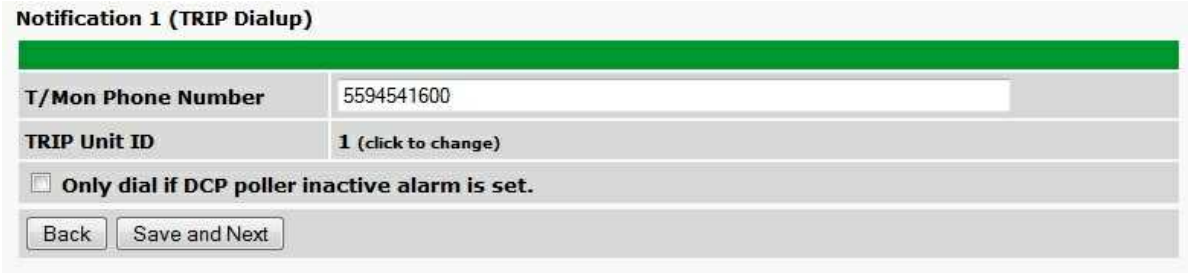
SNMP Notification	
SNMP Trap Server IP	The SNMP trap manager's IP address.
Trap Port No.	The SNMP port (UDP port) set by the SNMP trap manager to receive traps, usually set to 162.
Trap Community	Community name for SNMP TRAP requests.
Trap Type	Indicate whether you would like to send SNMP v1, v2c or v3 traps.
SNMPv3 user	The SNMPv3 User.

Voice Call Notification Fields (V16 G2 only)

Editing voice call notification settings

Voice Call Notification	
Phone number to call	Phone number the NetGuardian will call with incoming alarm information.
Delay	The amount of time that will pass before the NetGuardian will call the next person on the assigned call list. Enter s for seconds or m for minutes. *Example*: 45s = 45 seconds.
Call all numbers in this list. Ack logic is disabled.	Forces the NetGuardian to call everyone on the assigned call list, disabling their ability to acknowledge the alarm and stop the phone tree process.
Extended call loop.	If checked, all configured phone numbers will be dialed (in the order entered) five times or until the alarm is acknowledged.

TRIP Dialup (T/Mon) Notification Fields (V16 G2 only)



Editing Call notification settings

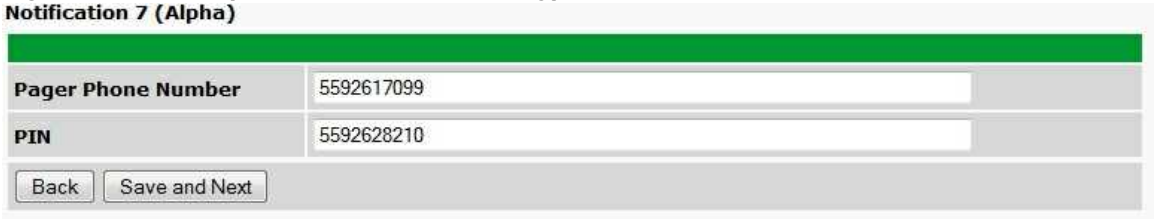
Call Notification	
T/Mon Phone Number	Enter the phone number for your T/Mon unit
Only dial if DCP poller inactive alarm is set	Check this box if you want the NetGuardian to only dial if the DCP poller inactive alarm is set

Relay Group

Editing Relay Group settings

Alpha Pager Notification	
Operation Type	Determines whether the alarm will cause the relay to stay on (Latching) or toggled (Momentary).
Active Relays	Relays that will be operated on alarm.

Alpha Pager Notification (NetGuardian V16 G2 only)



Editing Alpha Pager settings

Alpha Pager Notification	
Phone number to call	Phone number to send the notification.
PIN	Personal Identification Number for TAP terminal Authentication.

11.7.2 Schedule

The notifications scheduling menu is where you will tell the NetGuardian exactly which days and times you want to receive alarm notifications. You set 2 different schedules for each.

Notification 1 (Schedule)
Id Sun Mon Tue Wed Thu Fri Sat Notification Time
1
Any Time
12 h 0 min AM to 11 h 59 min PM
2
Any Time
12 h 0 min AM to 11 h 59 min PM
Back
Save and Finish

The Schedule creation screen

Notification Scheduling	
Days of the week	From either Schedule 1 or 2, check which days you want to receive notifications.
Any Time	Select this is if you want to receive alarm notifications at any time for the day(s) you've selected.
Notification Time	Tells the unit to only send notifications during certain hours on the day(s) you've selected.

11.8 Alarms

Discrete alarms are configured from the **Provisioning** > **Alarms** menu. Descriptions for the alarm points, polarity (normal or reversed) and notification type(s) are defined from this menu. You also have the option to use **Basic** or **Advanced** configuration methods, explained in this section.

The Provisioning > Alarms menu

Basic Alarm Configuration	
ID	Alarm ID number.
Description	User-definable description for the discrete alarm point.
Rev (Reverse)	Reverse: Check this box to reverse the polarity of the alarm point. Leaving this option un-checked means a normally open contact closure is an alarm. When polarity is reversed, a normally closed alarm point is clear when closed.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point.
Advanced Alarm Configuration (Advanced>>)	
On Set	User-definable description (condition) that will appear for the discrete alarm input on Set. Example: "Alarm".
On Clear	User-definable description (condition) that will appear for the discrete alarm input on Clear: "Example: "Alarm Cleared".
Qual. Time (Qualification Time)	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
Qual. Type (Qualification Type)	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.

11.9 Controls

The NetGuardian's 2-18 control relays can be configured in the **Provisioning** > **Controls** menu. You can enter your own description for these relays and designate them to a notification device(s).

The Provisioning > Controls screen

Basic Controls Configuration	
ID	ID number for the control relay.
Description	User-definable description for the NetGuardian's control relay.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for the control relay.
Derived Description	Control relays and virtual alarms can be created with a derived formula and tested with the Parse button. See below for more information.
Momentary Time	Control on time (in milliseconds) when you execute the MOM command. Max limit of 600 seconds.

Derived controls can be created from derived formulas using the following operations:

_OR : Set the current operation to OR.
_AN : Set the current operation to AND.
_XR : Set the current operation to XOR.
D : Tag to change the active display number.
. : Used like a comma to delimit numbers.
- : Used to specify a range of points.

Spaces included here are for readability purposes only.

Hot Tip!

- Precedence of the operations are always left to right.
- All number references can either be one or two digits.

_**OR D1.3-5** is logically equivalent to (1.3 || 1.4 || 1.5)

_**AN D 1.3-5 D2.6** _**OR D3.7** is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6) || 3.7)

_**OR D01.03-05 D02.06** _**AN D02.07 D03.10.-12** is logically equivalent to ((1.3 || 1.4 || 1.5 || 2.6&& (2.7 && 3.10 && 3.12))

_**AN D1.3-5D2.6**_**OR.7D3.10.12** is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6) || 2.7 || 3.10 || 3.12))

11.10 Virtual Controls (PGE Only)

The NetGuardian's Virtual Control Relays can be configured in the Provisioning>Virtual Controls menu. Virtual Controls allow you to manage a group of controls based on a set of instructions.

Provisioning > Virtual controls

Basic Virtual Controls Configuration

ID:	ID number for the Virtual Control
Description:	User-definable description for the NetGuardian's Virtual Relay
Enabled:	Allows user to Enable/Disable certain Virtual Controls
Control Group:	Group of Controls that will be included in Virtual Control
Script:	Instructions that the Control Group will follow when Virtual Control is triggered
Validate:	Allows User to check the entered Control Group and Script to ensure that the syntax is correct

Control Group:

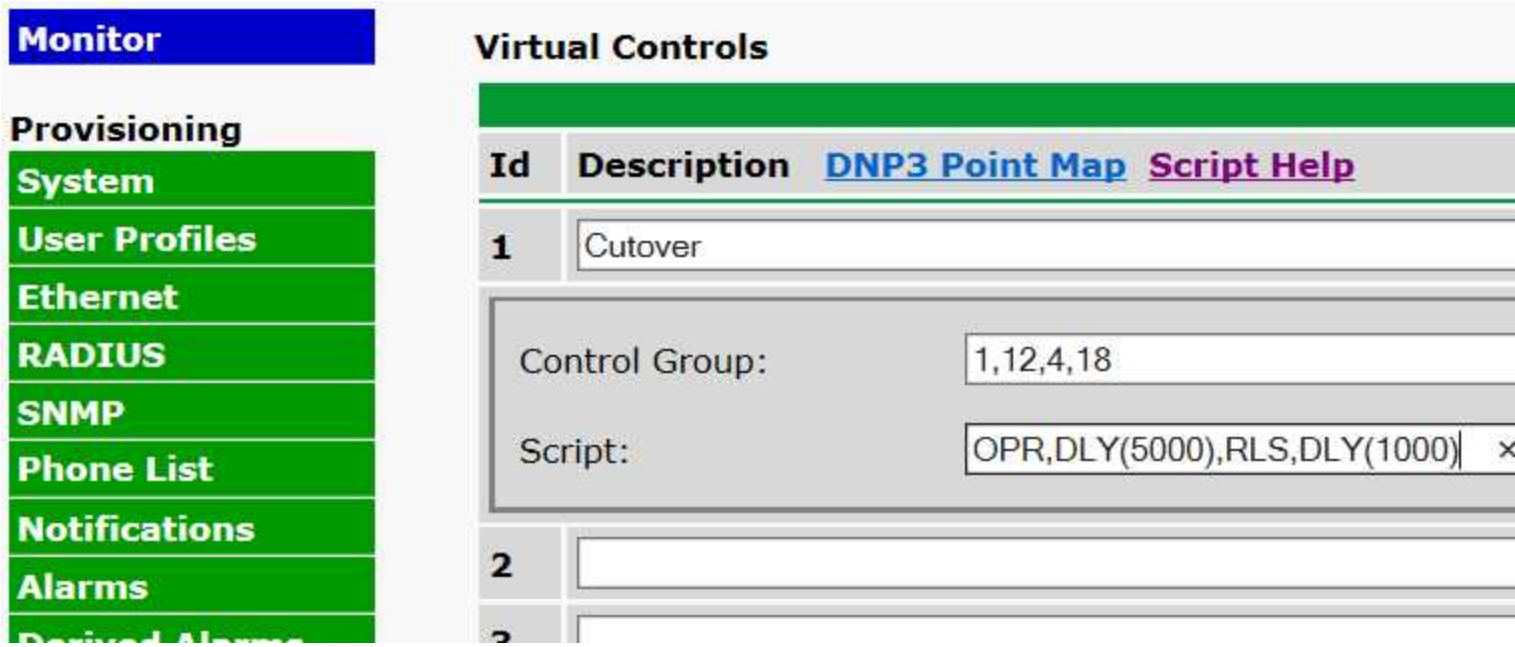
- All Control Index's need to be followed by a comma (","), except for the last control
  - -Example:
    - Control: 1,12,4,18
  - -Order of execution:
    - Control 1 > Control 12 > Control 4 > Control 18

Script:

- Available Functions:

OPR	(Operate Controls)
RLS	(Release Controls)
DLY(x)	(Delay time for x milliseconds)

- All Script Functions are case sensitive and need to entered in UPPERCASE format.
  - -Example:
    - Control Group: 1,12,4,18
    - Script: OPR,DLY(5000),RLS,DLY(1000)



Provisioning > Virtual Controls

-**Note:** After naming your Virtual Control in the box provided, check the 'Enabled' checkbox to access the Control Group and Script fields.

-Order of execution:

Control 1 LATCHED > DELAY (5 SECONDS) > Control 1 RELEASED > DELAY (1 Second) >

Control 12 LATCHED > DELAY (5 SECONDS) > Control 12 RELEASED > DELAY (1 Second) >

Control 4 LATCHED > DELAY (5 SECONDS) > Control 4 RELEASED > DELAY (1 Second) >

Control 18 LATCHED > DELAY (5 SECONDS) > Control 18 RELEASED > DELAY (1 Second)

11.11 Analogs

The NetGuardian can have up to 6 analog channels. The 5th and 6th channels are dedicated to monitoring the power input (channel is not used if build option was not selected). These channels support the entire range of power inputs that the NetGuardian can support. Channels 1-4 are user-definable. Each channel must be individually configured to monitor data.

Note: Only analogs supported by the units hardware will appear in the NetGuardian web browser interface.

The Provisioning > Analogs menu

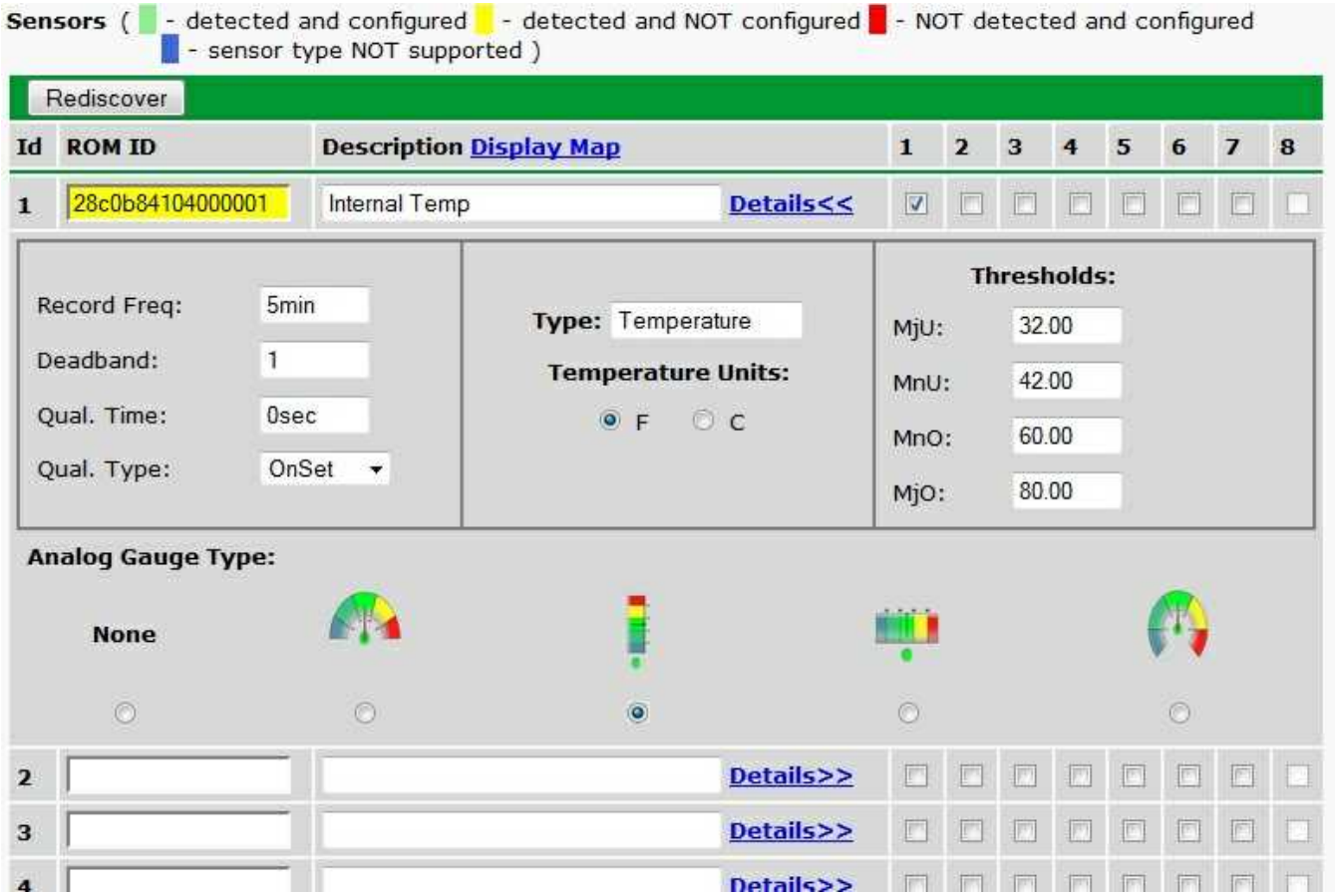
Basic Analog Configuration	
ID	Analog ID number.
Enab	Check this box to enable the analog.
Description	User-definable description for the analog channel.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point.
Advanced Analog Configuration (Details>>)	
Record Freq	The amount of time, in minutes (min) or seconds (s), between each log of each analog value to history.
Deadband	The amount (in volts) that the channel needs to go above or below a threshold in order to cause an alarm.
On Set	User-definable description (condition) that will appear for the temperature alarm on Set. Example: "Alarm".
On Clear	User-definable description (condition) that will appear for the temperature alarm Clear. Example: "Alarm Cleared".
Qual Time (Qualification Time)	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
Qual. Type (Qualification Type)	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.
Units	User-definable display units or optional choice between Fahrenheit and Celsius temperatures. The most common are: VDC = Voltage %H = Humidity F = Fahrenheit C = Celsius User can click on the units box to cycle between availble unit types
Low Ref	User-definable lower reference/scaling level. This scales the information collected by the sensor (in mA or VDC) to a meaningful unit for the user. For example, for a temperature sensor, the lower input collected by the sensor may be 4mA (for a 4-20mA sensor), which would correspond to a specific temperature you define in this field.
High Ref	User-definable upper reference/scaling level. This scales the information collected by the sensor (in mA or VDC) to a meaningful unit for the user. For example, for a temperature sensor, the upper input collected by the sensor may be 20mA (for a 4-20mA sensor), which would correspond to a specific temperature you define in this field.
Thresholds	These settings are set to indicate the severity of the alarm depending on which threshold values have been passed. Enter values for Major Under (MjU), Minor Under (MnU), Minor Over (MnO), and Major Over (MjO).
Analog Gauge Type	Select the color-coded gauge that best represents your data. Selecting **None** will disable the analog gauge and only a numerical representation of the value will be displayed under **Monitor** > **Analogs**.

11.12 Sensors

The NetGuardian supports up to 16 daisy-chained D-Wire sensors via its D-Wire input. Sensors connected to the NetGuardian will appear on the NetGuardian's web interface. The background color of the ROM field informs the user of the sensor's configuration state.

Also the NetGuardian's first D-Wire sensor used to monitor the internal temperature. The internal temperature sensor measures a range of -40° F to 180° F (-40° C to 82.2° C) within an accuracy of about ± 2°.

Basic configuration for the NetGuardian's D-Wire temperature sensors can be accomplished from the **Provisioning** > **Sensors** menu. From this screen, you can configure D-Wire sensors, select notification devices, and set thresholds.



The Provisioning > Sensors menu

Basic Sensor Configuration	
Rediscover	Button forces the RTU to re-auto detect sensors.
ID	Sensor ID number.
ROM ID	The ID number found on the sticker of the temperature sensor node. Your NetGuardian will automatically detect the sensor ID when you plug a sensor into the unit. The color of the sensor ID field will tell you the status of the connected sensor. **Green** - The sensor is connected and properly configured. **Yellow** - The sensor is connected but has not yet been configured (fill in your configuration fields and click **Save** to configure the sensor). **Red** - The sensor is not detected and configured (i.e. a previous configured sensor is no longer connected). **Blue** - The sensor is not supported by the NetGuardian. To reconfigure or disable the Sensor ID, simply delete any data in this field and click **Save**. The unit will refresh the sensor ID on that channel.
Description	User-definable description for the sensor channel.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point.
Advanced Sensor Configuration (Details>>)	
Record Freq	The amount of time, in minutes (min) or seconds (s), between each recorded sensor value.
Deadband	The amount (in native units) that the channel needs to go above or below a threshold in order to cause an alarm.
Qual Time (Qualification Time)	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
Qual. Type (Qualification Type)	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both. **On Set:** User-definable description (condition) that will appear for the temperature alarm on Set. Example: "Alarm". **On Clear:** User-definable description (condition) that will appear for the temperature alarm Clear. Example: "Alarm Cleared".
Thresholds	These settings are set to indicate the severity of the alarm depending on which threshold values have been passed. Enter values for Major Under (MjU), Minor Under (MnU), Minor Over (MnO), and Major Over (MjO).
Analog Gauge Type	Select the color-coded gauge that best represents your data. Selecting **None** will disable the analog gauge and only a numerical representation of the value will be displayed under **Monitor** > **Sensors**.

Note: Before plugging in any additional D-Wire Sensors, set up the internal sensor.

11.13 Ping Targets

The **Provisioning** > **Ping Targets** menu allows you to configure the Description, IP Address, and Notification Devices for each of your 32 ping targets.

The Provisioning > Ping Targets menu

Provisioning Ping Targets	
ID	ID number for the ping target.
Enab	Check this box to enable the ping target.
Description	User-definable description for the ping target.
Server (IP or Hostname)	IP address or hostname of the device you would like to ping.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for ping target.

11.14 System Alarms

See "Display Mapping" in the Reference Section for a complete description of system alarms.

System Alarms

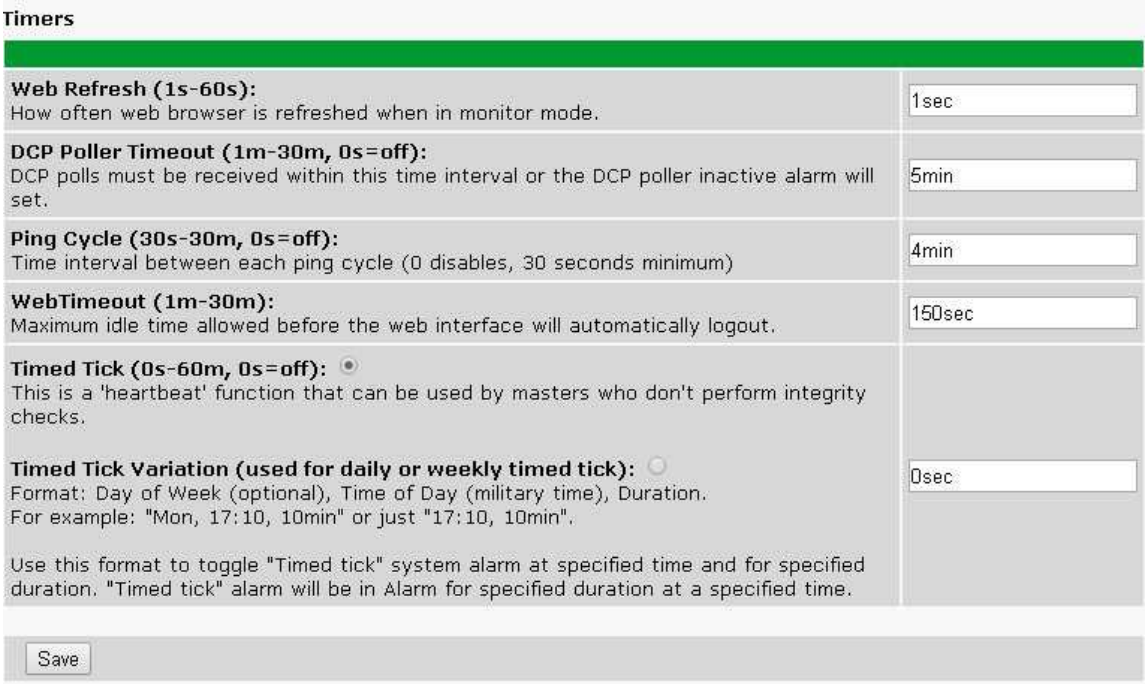
Pnt	Description Display Map	Silence	1	2	3	4	5	6	7	8
33	Default configuration	☐	☐	☐	☐	☐	☐	☐	☐	☐
34	DCP poller inactive	☐	☐	☐	☐	☐	☐	☐	☐	☐
39	SNMP community error	☐	☐	☐	☐	☐	☐	☐	☐	☐
41	Notification 1 failed	☐	☐	☐	☐	☐	☐	☐	☐	☐
42	Notification 2 failed	☐	☐	☐	☐	☐	☐	☐	☐	☐
43	Notification 3 failed	☐	☐	☐	☐	☐	☐	☐	☐	☐
44	Notification 4 failed	☐	☐	☐	☐	☐	☐	☐	☐	☐

The Provisioning > System Alarms menu

Editing System Alarms	
Pnt (Point)	The system alarm point number
Description	Non-editable description for this System (housekeeping) Alarm.
Silence	Check this box to choose to silence this alarm.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point.

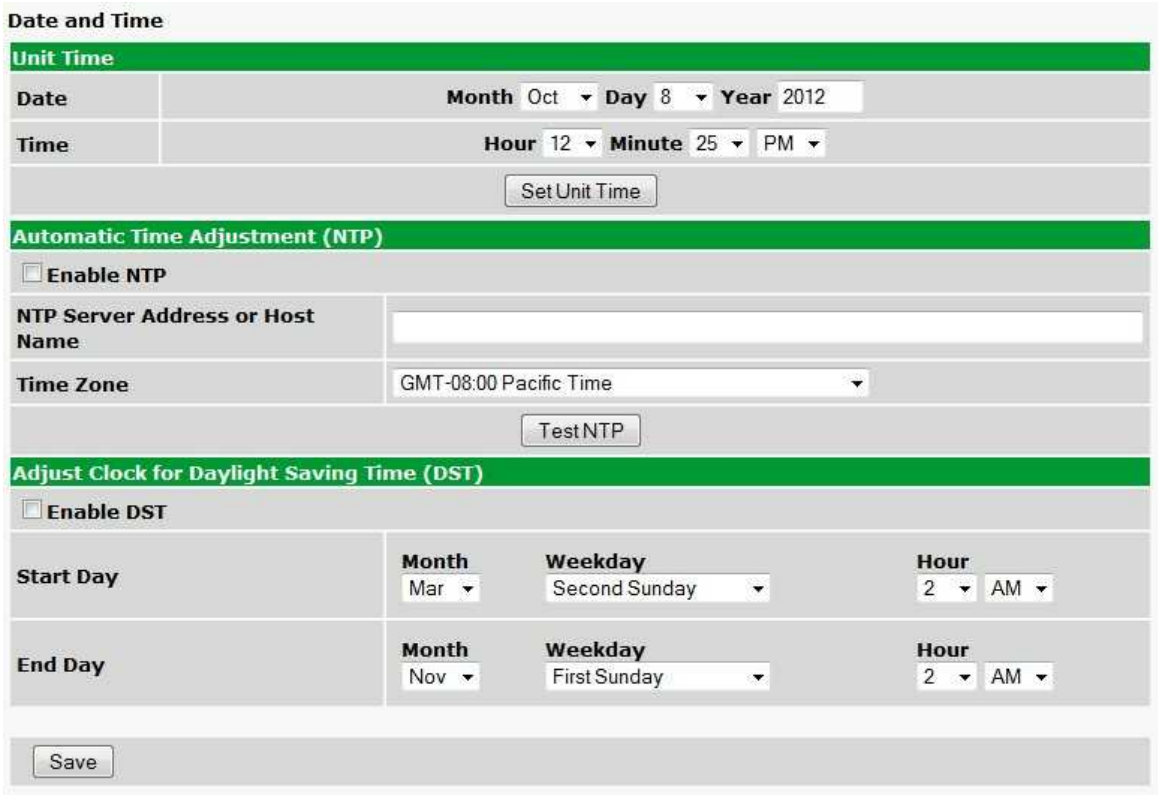
11.15 Timers

The **Timers** are user-definable, and allow you to choose the intervals between automatic refreshing of the unit's web browser interface. Enter the amount of time, in seconds (sec) or minutes (m), in the value field and click **Save**.


Timers
Web Refresh (1s-60s):
How often web browser is refreshed when in monitor mode.
1sec
DCP Poller Timeout (1m-30m, 0s=off):
DCP polls must be received within this time interval or the DCP poller inactive alarm will set.
5min
Ping Cycle (30s-30m, 0s=off):
Time interval between each ping cycle (0 disables, 30 seconds minimum)
4min
WebTimeout (1m-30m):
Maximum idle time allowed before the web interface will automatically logout.
150sec
Timed Tick (0s-60m, 0s=off):
This is a 'heartbeat' function that can be used by masters who don't perform integrity checks.
Timed Tick Variation (used for daily or weekly timed tick):
Format: Day of Week (optional), Time of Day (military time), Duration.
For example: "Mon, 17:10, 10min" or just "17:10, 10min".
Use this format to toggle "Timed tick" system alarm at specified time and for specified duration. "Timed tick" alarm will be in Alarm for specified duration at a specified time.
0sec
Save

The Provisioning > Timers menu

11.16 Date and Time



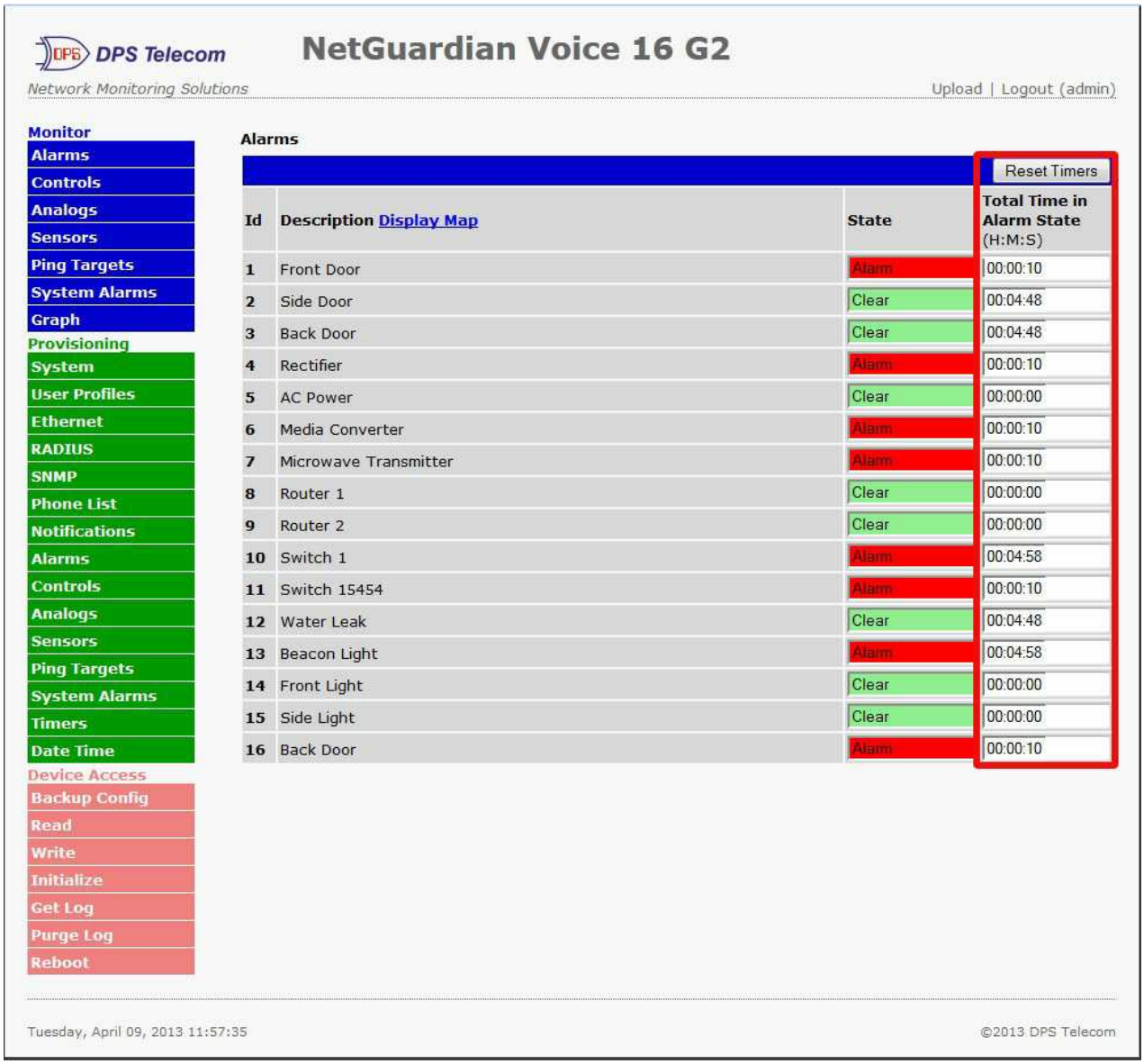
The Provisioning > Date and Time menu

Unit Time	
Date	Set today's date.
Time	Set the current time.
Automatic Time Adjustment (NTP)	
Enable NTP	Check this box to enable Network Time Protocol.
NTP Server Address or Host Name	Enter the NTP server's IP address or host name, then click **Sync**. Example: us.pool.ntp.org. **Note**: Make sure to configure DNS before using host name instead of IP address.
Time Zone	Select your time zone from the drop-down menu.
Adjust Clock for Daylight Savings Time (DST)	
Enable DST	Check this box to have the NetGuardian V16 G2 observe Daylight Savings.
Start Day	Select the month, weekday, and time when Daylight Savings will begin.
End Day	Select the month, weekday, and time when Daylight Savings will end.

12 Monitoring via the Web Browser

12.1 Alarms

This selection provides the status of the base alarms by indicating if an alarm has been triggered. Under the **State** column, the status will appear in red if an alarm has been activated. The status will be displayed in green when the alarm condition is not present.



Click on Alarms in the Monitor menu to see if any base alarms have been triggered.

Basic Alarm Monitoring	
ID	Alarm ID number.
Description	User-definable description for the discrete alarm point.
State	The current state of the alarm. (Clear or Alarm)
Total Time in Alarm State	Counter for the total time the point has been in the alarm state. 1) This timer is always on. 2) The maximum time value is 18 hours. Once 18 hours is reached, the timer will

	stop counting. 3) The timer will survive a soft reboot (a reboot from the web interface). 4) The timer will not survive a hard reboot (losing power, disconnection, etc). The timer will be restored to its previously saved value.

12.2 Controls

Use the following rules to operate the NetGuardian's control:

1. Select **Controls** from the **Monitor** menu.
2. Under the **State** field, you can see the current condition of the control.
3. To issue the control, click on a command (**OPR** - operate, **RLS** - release, or **MOM** - momentary)

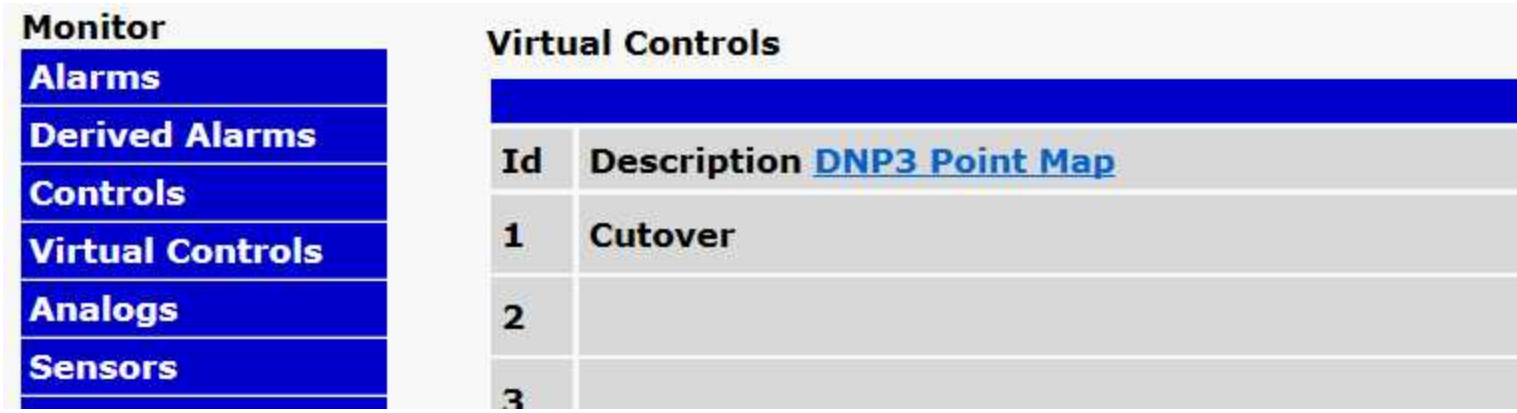
Controls
Id
Description Display Map
State
Command
1 Front Door Released OPR RLS MOM
2 Side Door Released OPR RLS MOM
3 Back Door Released OPR RLS MOM
4 Tower Lights Released OPR RLS MOM
5 Router 1 Released OPR RLS MOM
6 Router 2 Released OPR RLS MOM
7 Switch 1 Released OPR RLS MOM
8 Switch 2 Released OPR RLS MOM
9 Media Converter Released OPR RLS MOM
10 Server A Released OPR RLS MOM
11 Server B Released OPR RLS MOM
12 Server C Released OPR RLS MOM
13 IP Camera Released OPR RLS MOM
14 Encoder Released OPR RLS MOM
15 Decoder Released OPR RLS MOM
16 Media Switcher Released OPR RLS MOM
17 Back Lights Released OPR RLS MOM
18 Front Lights Released OPR RLS MOM

View and operate control relays from the Monitor > Controls menu

Control Relay Operation	
ID	ID number for the control relay.
Description	Description for the NetGuardian's control relay defined in the Provisioning > Controls menu.
State	Status of the control relay. Can either be **Released** or **Latched**.
Command	**OPR** - Latch the relay. **RLS** - Release the relay. **MOM** - Momentarily latch the relay, then automatically release the relay. The duration of the latch is defined in the Provisioning > Controls menu.

12.3 Virtual Controls (PGE Only)

Use the following rules to operate the NEtGuardian's Virtual Controls:
1. Select Virtual Controls from the Monitor menu.
2. Under the State field, you can see the current condition of the Virtual Control.
3. To enable the Virtual Control, click on the "OPR" (operate) button.



Monitor > Virtual Controls

Basic Virtual Controls Configuration

ID: ID number for the Virtual Control

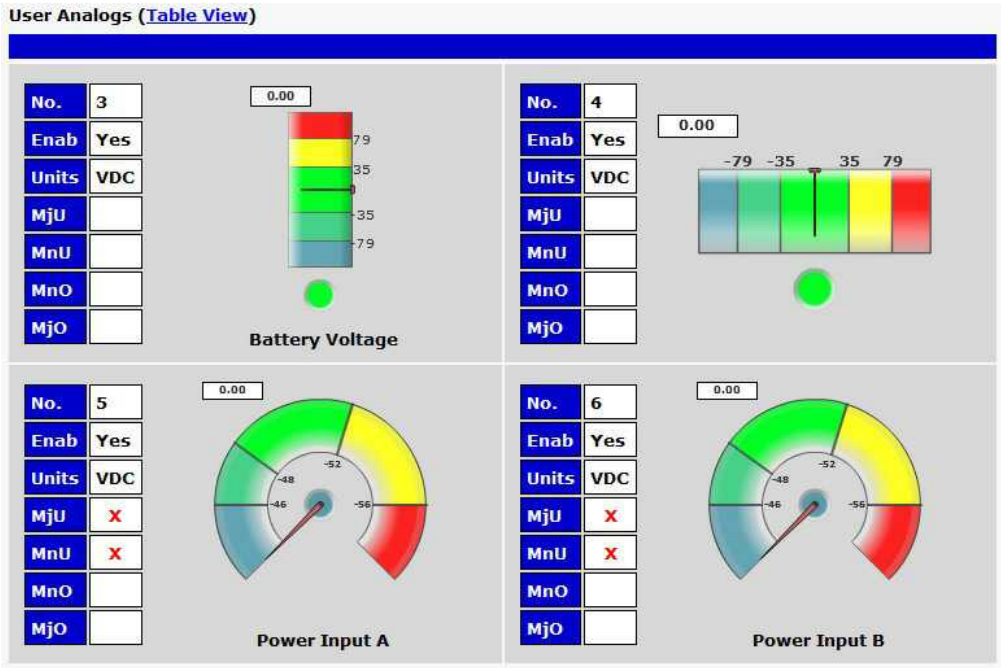
Description: Description for the NetGuardian's control relay defined in the Provisioning > Virtual Controls menu

State: Status of the Virtual Control. Can either be Released or Latched

Command: OPR - Latch the Virtual Control

12.4 Analogs

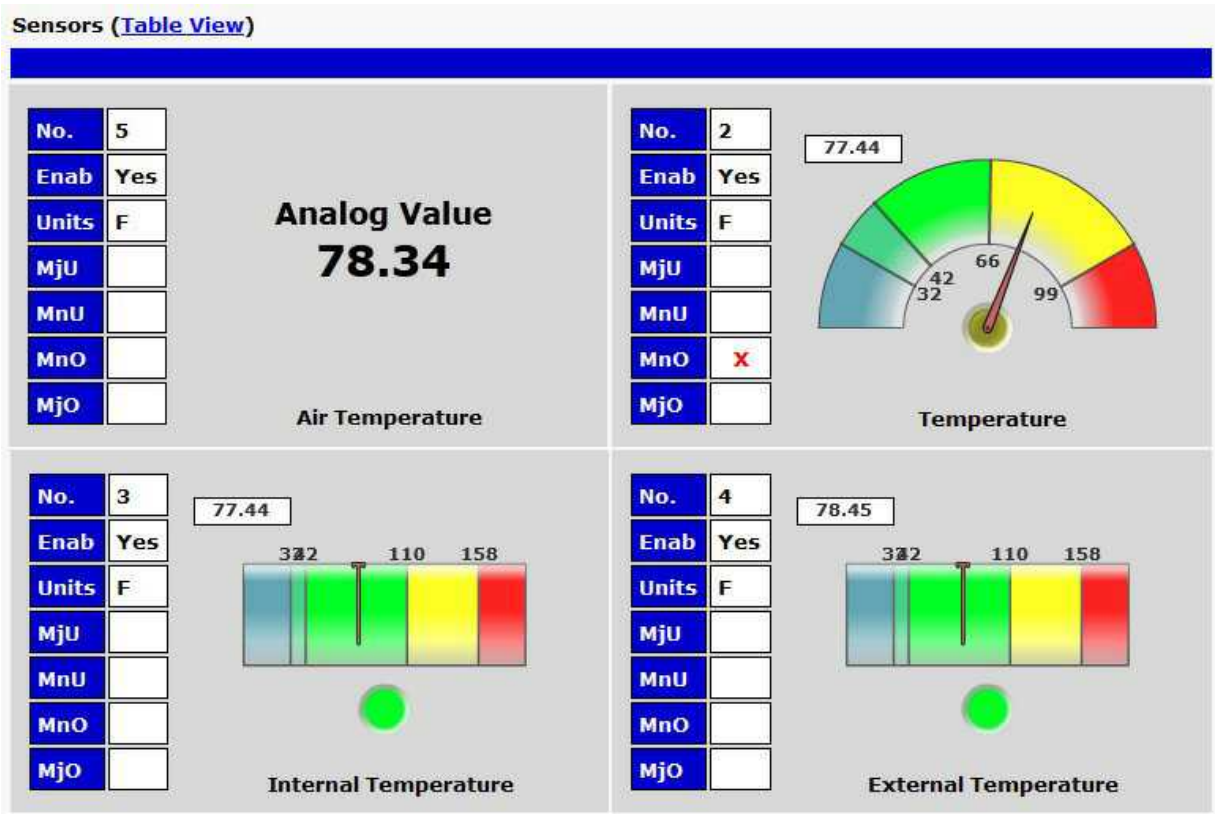
The **Monitor** > **Analogs** screen provides a description of each analog channel, the current reading, the units being read, and alarm conditions (major under, minor under, major over, minor over) according to your temperature settings. If configured under **Provisioning** > **Analogs**, your analog values will be displayed as a graphical gauge. Selecting **Table View** will display a non-graphical interface of your values.



Click on Analogs in the Monitor menu to view the current channel readings.

12.5 Sensors

This selection provides the status of the system's analog channels by indicating if an alarm has been triggered. The **Monitor** > **Sensors** screen provides a description of each analog channel, the current reading, the units being read, and alarm conditions (major under, minor under, major over, minor over) according to your temperature settings. If configured under **Provisioning** > **Sensors**, your analog values will be displayed as a graphical gauge. Selecting **Table View** will display a non-graphical interface of your values.



The Monitor > Sensors menu

12.6 Ping Targets

Ping Targets can be viewed by going to **Monitor** > **Ping Targets**. Here you can view the state (either **Clear** or **Alarm**) for each of your configured Ping Targets. Up to 32 ping targets may be configured.

Ping Targets

Id	Description Display Map	State
1	Cisco Router	Clear
2	Ethernet Switch 1	Clear
3	Ethernet Switch 2	Clear
4	Ethernet Switch 2	Clear
5	Router 2	Clear
6	Media Converter	Clear
7	Microwave Transmitter	Clear
8	Cisco 15454	Clear
9	Calix	Clear
10	Modem	Clear
11	PBX	Clear
12	Proxy Server	Clear

View the status of Ping Targets from the Monitor > Ping Targets menu.

12.7 System Alarms

System alarms are not-editable, housekeeping alarms that are programmed into NetGuardian. The **Monitor** > **System Alarms** screen provides the status of the system alarms by indicating if an alarm has been triggered. Under the **State** column, the status will appear in red if an alarm has been activated. The status will be displayed in green when the alarm condition is not present.

See "Display Mapping" in the Reference Section for a complete description of system alarms.

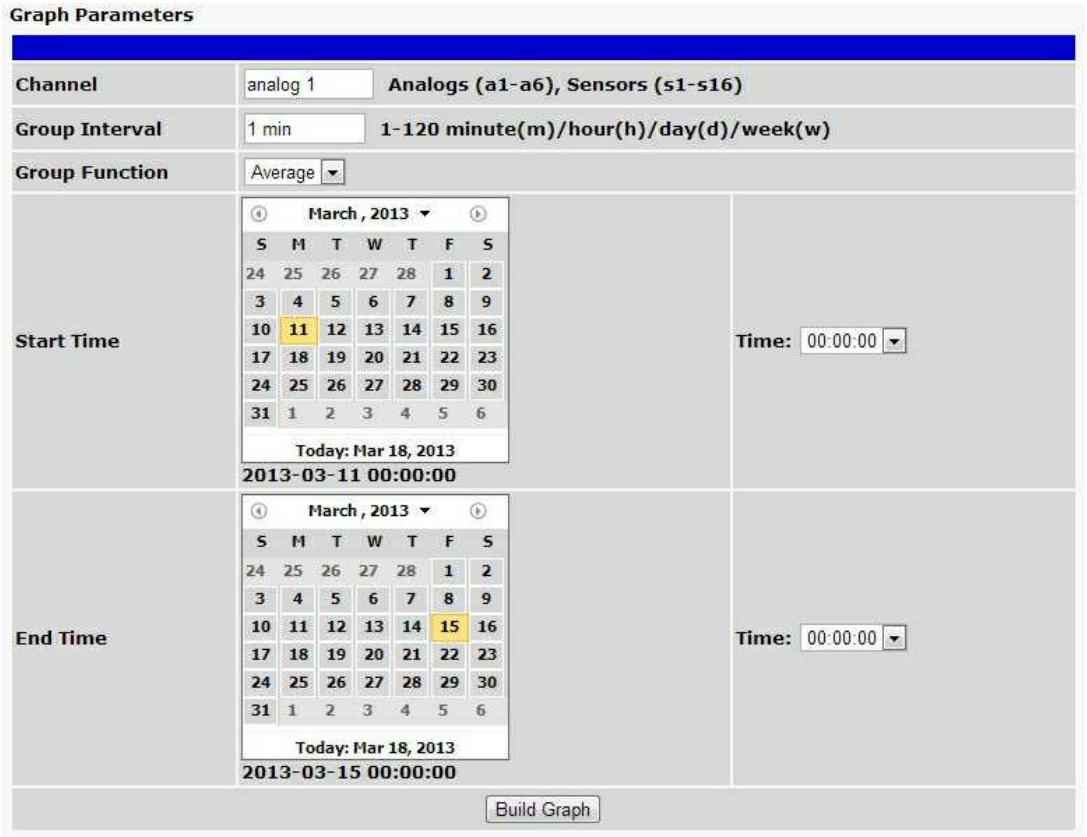
System Alarms

Pnt	Description Display Map	State
33	Default configuration	Clear
34	DCP poller inactive	Clear
39	SNMP community error	Clear
41	Notification 1 failed	Clear
42	Notification 2 failed	Alarm
43	Notification 3 failed	Clear
44	Notification 4 failed	Clear

View the status of System Alarms from the Monitor > System Alarms menu.

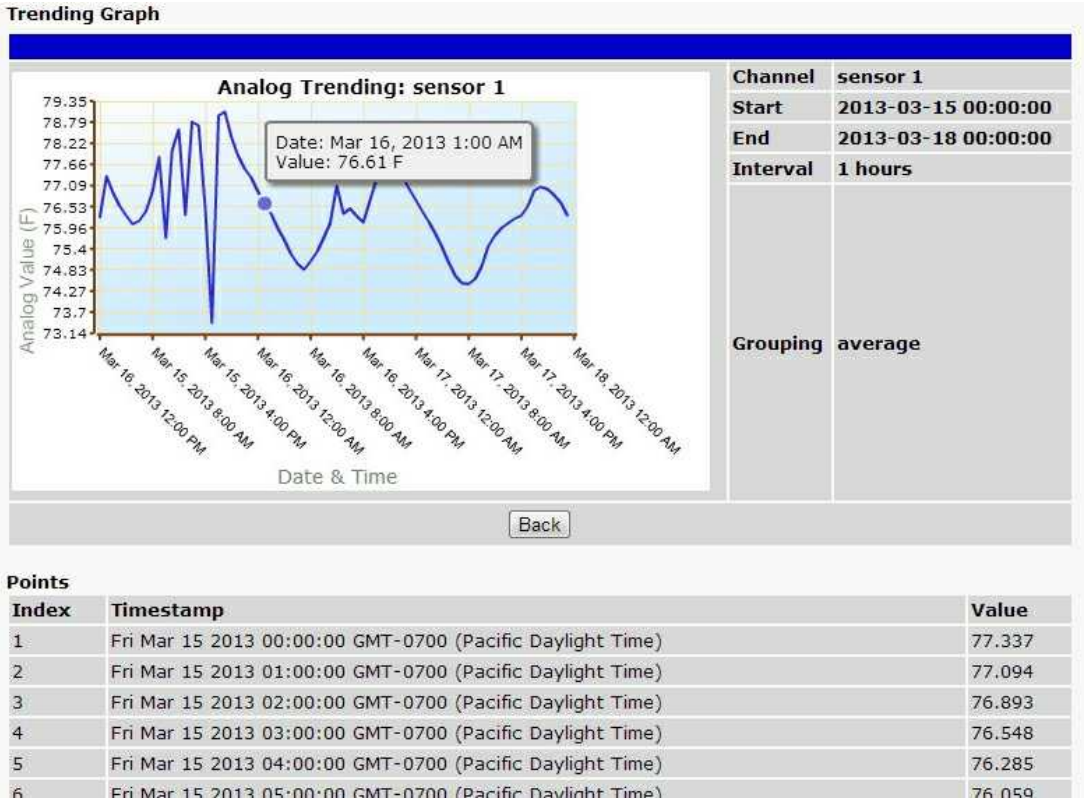
12.8 Graph

The Graph section of the monitor menu lets you build a graph of past sensor measurements, which gives you a visual indication of data over time and points out trending values. To create your Graph, specify the Channel (Analogs 1-6 or Sensors 1-16), Group Interval (1-120 minutes, hours, days, or weeks), the Group Function (Average, Min, Max), and Start & End Times. Once you have entered all of the desired values, click "Build Graph."



Provision the Channels, Group Interval, Group Function and more - all from the Graph Parameters section of the web browser interface.

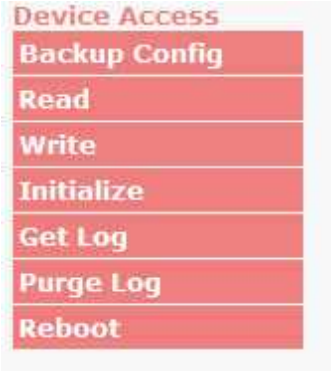
Your graph will appear on the next screen. This graph is Adobe Flash-based and allows you to mouse over the lines to quickly view measurements (date, time, and value) within their context of the overall graphing trend. Below the graph is a full textual list of all indexed points with their dates and values.



Specify your parameter values and build an interactive graph based on the alarm point history.

13 Device Access Descriptions

The **Device Access** options, listed in pink on the left side of the web interface, provide options for generating reports, updating the NetGuardian's firmware, and rebooting the unit. Click any of the options under **Device Access** to perform the desired action.



The control menu is located in the bottom left of the web interface

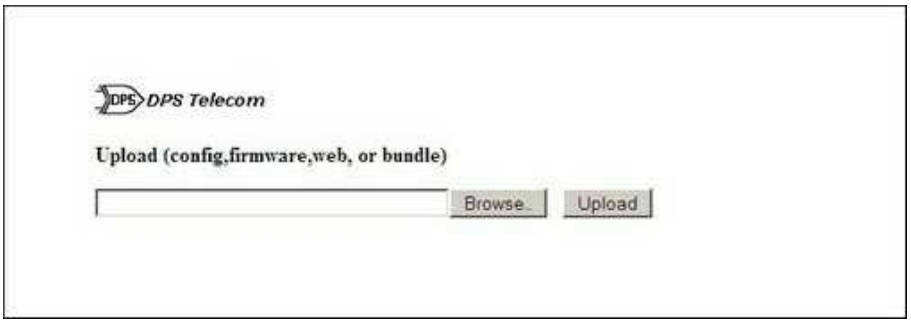
Device Access Option	Description
Backup Config	Backs up the units configuration settings
Read	Reads a configuration file from the unit
Write	Commits all changes made in the web interface to the NetGuardian's non-volatile memory
Initialize	Sets the unit's configuration to factory default values
Get Log	Opens the NetGuardian's event log in Notepad (or another plain text editor).
Purge Log	Deletes the NetGuardian's event log history.
Reboot	Reboots the NetGuardian.

14 Firmware Upgrade

To access the **Firmware Load** screen, click on the **Provisioning** > **System** menu. At the bottom of this screen, click the **Restore Configuration** link located in the **System Controls** section.

*To upload firmware, click on **Upload** on the top right corner of the web interface*

At the **Firmware Load** screen, simply browse for the firmware update you've downloaded from www.dpstele.com and click **Load**.



Browse for downloaded firmware upgrade

15 Front and Back Panel LED

Front panel LEDs

LED	Status	Description
Alarm	Flashing Red	New alarm
	Solid Red	Standing alarm acknowledged
Error (M16 Only)	Flashing Red	System error
Primary (M16 Only)	Flashing Green	Data transmitted on PRI Serial
	Flashing Red	Data recieved on PRI Serial
Hook (V16 G2 Only)	Solid Green	Modem is off hook for voice
	Solid Red	Modem is off hook for data
Modem (V16 G2 Only)	Flashing Green	Playing Voice (Voice Mode) / Transmitting data through the Modem (Data Mode)
	Flashing Red	Receiving DTMF commands (Voice Mode) / Receiving data through the Modem (Data Mode)
Power	Solid Green	Power supply OK
	Off	No voltage or power leads reversed
Craft	Flashing Green	Transmitting data over craft port
	Flashing Red	Receiving data over craft port
Status	Flashing Green	Application is running
	Flashing Red	Boot Loader is running

Front Panel LED Descriptions

Back panel LEDs

LED	Status	Description
FA	Solid Red	Blown Fuse
LNK	Solid Green	LAN Connected
LAN	Flashing Green	Transmit and receive activity over Ethernet port
PWR A/B	Solid Green	Power supply OK
	Off	No voltage or power leads reversed
100BT	Solid Green	LAN connection speed is 100BaseT
	Off	LAN connection speed is 10BaseT

Back Panel LED Descriptions

Back panel (with Fiber Option) LEDs

LED		Status	Description
LNK		Solid Green	LAN Connected
LAN		Flashing Green	Transmit and receive activity over Ethernet port
100BT		Solid Green	LAN connection speed is 100BaseT
		Off	LAN connection speed is 10BaseT
SFP Fiber 1000Base-X *(Fiber build option only)*	**1-2**	Solid Red	SFP detected, no link.
		Solid Green	SFP detected, link is up.
		Flashing Red	No SFP detected.
		Off	SFP detected, connection issues.
10/100/1000 BaseT Switch *(Fiber build option only)*	**1-4**	Flashing Green	Activity on port detected.
		Solid Green	Link detected.

16 Reference Section

16.1 Display Mapping & System Alarms

	Description	Port	Address	Point
Display 1	Discrete Alarms	99	1	1-16
	Derived Alarms	99	1	17-32
	Default Configuration	99	1	33
	DCP Poller Inactive	99	1	34
	SNMP Community Error	99	1	39
	Notification 1 Failed	99	1	41
	Notification 2 Failed	99	1	42
	Notification 3 Failed	99	1	43
	Notification 4 Failed	99	1	44
	Notification 5 Failed	99	1	45
	Notification 6 Failed	99	1	46
	Notification 7 Failed	99	1	47
	Notification 8 Failed	99	1	48
	NTP Failed	99	1	49
	Timed Tick	99	1	50
	Dynamic Memory Full	99	1	51
	Unit Reset	99	1	52
	TRIP Error	99	1	55
	No Dial tone	99	1	56
	Modem Failed	99	1	57
	Contact Closure Communication Failed	99	1	58
	Virtual Control Configuration Error	99	1	59
Display 2	Controls	99	1	1-18
	Undefined	99	1	19-32
	Ping Targets	99	1	33-64
Display 3	Analog 1 Minor Under	99	1	1
	Analog 1 Minor Over	99	1	2
	Analog 1 Major Under	99	1	3
	Analog 1 Major Over	99	1	4
	Control	99	1	9-16
	Value	99	1	17-32
	Analog 2 Minor Under	99	1	33
	Analog 2 Minor Over	99	1	34
	Analog 2 Major Under	99	1	35
	Analog 2 Major Over	99	1	36
	Control	99	1	41-48
	Value	99	1	49-64
Display 4	Analog 3 Minor Under	99	1	1
	Analog 3 Minor Over	99	1	2
	Analog 3 Major Under	99	1	3
	Analog 3 Major Over	99	1	4
	Control	99	1	9-16
	Value	99	1	17-32
	Analog 4 Minor Under	99	1	33
	Analog 4 Minor Over	99	1	34
	Analog 4 Major Under	99	1	35
	Analog 4 Major Over	99	1	36
	Control	99	1	41-48
	Value	99	1	49-64

Display 5	Power A Minor Under	99	1	1
	Power A Minor Over	99	1	2
	Power A Major Under	99	1	3
	Power A Major Over	99	1	4
	Control	99	1	9-16
	Value	99	1	17-32
	Power B Minor Under	99	1	33
	Power B Minor Over	99	1	34
	Power B Major Under	99	1	35
	Power B Major Over	99	1	36
	Control	99	1	41-48
	Value	99	1	49-64
Display 6	Digital sensor 1 Minor Under	99	1	1
	Digital sensor 1 Minor Over	99	1	2
	Digital sensor 1 Major Under	99	1	3
	Digital sensor 1 Major Over	99	1	4
	Digital sensor 1 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 2 Minor Under	99	1	33
	Digital sensor 2 Minor Over	99	1	34
	Digital sensor 2 Major Under	99	1	35
	Digital sensor 2 Major Over	99	1	36
	Digital sensor 2 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64

Display Mapping

Display	Description	Port	Address	Point
Display 7	Digital sensor 3 Minor Under	99	1	1
	Digital sensor 3 Minor Over	99	1	2
	Digital sensor 3 Major Under	99	1	3
	Digital sensor 3 Major Over	99	1	4
	Digital sensor 3 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 4 Minor Under	99	1	33
	Digital sensor 4 Minor Over	99	1	34
	Digital sensor 4 Major Under	99	1	35
	Digital sensor 4 Major Over	99	1	36
	Digital sensor 4 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64
Display 8	Digital sensor 5 Minor Under	99	1	1
	Digital sensor 5 Minor Over	99	1	2
	Digital sensor 5 Major Under	99	1	3
	Digital sensor 5 Major Over	99	1	4
	Digital sensor 5 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 6 Minor Under	99	1	33
	Digital sensor 6 Minor Over	99	1	34
	Digital sensor 6 Major Under	99	1	35
	Digital sensor 6 Major Over	99	1	36
	Digital sensor 6 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64
Display 9	Digital sensor 7 Minor Under	99	1	1
	Digital sensor 7 Minor Over	99	1	2
	Digital sensor 7 Major Under	99	1	3
	Digital sensor 7 Major Over	99	1	4
	Digital sensor 7 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 8 Minor Under	99	1	33
	Digital sensor 8 Minor Over	99	1	34
	Digital sensor 8 Major Under	99	1	35
	Digital sensor 8 Major Over	99	1	36
	Digital sensor 8 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64

Display Mapping

Display	Description	Port	Address	Point
Display 10	Digital sensor 9 Minor Under	99	1	1
	Digital sensor 9 Minor Over	99	1	2
	Digital sensor 9 Major Under	99	1	3
	Digital sensor 9 Major Over	99	1	4
	Digital sensor 9 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 10 Minor Under	99	1	33
	Digital sensor 10 Minor Over	99	1	34
	Digital sensor 10 Major Under	99	1	35
	Digital sensor 10 Major Over	99	1	36
	Digital sensor 10 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64
Display 11	Digital sensor 11 Minor Under	99	1	1
	Digital sensor 11 Minor Over	99	1	2
	Digital sensor 11 Major Under	99	1	3
	Digital sensor 11 Major Over	99	1	4
	Digital sensor 11 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 12 Minor Under	99	1	33
	Digital sensor 12 Minor Over	99	1	34
	Digital sensor 12 Major Under	99	1	35
	Digital sensor 12 Major Over	99	1	36
	Digital sensor 12 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64
Display 12	Digital sensor 13 Minor Under	99	1	1
	Digital sensor 13 Minor Over	99	1	2
	Digital sensor 13 Major Under	99	1	3
	Digital sensor 13 Major Over	99	1	4
	Digital sensor 13 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 14 Minor Under	99	1	33
	Digital sensor 14 Minor Over	99	1	34
	Digital sensor 14 Major Under	99	1	35
	Digital sensor 14 Major Over	99	1	36
	Digital sensor 14 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64

Display Mapping

Display	Description	Port	Address	Point
Display 13	Digital sensor 15 Minor Under	99	1	1
	Digital sensor 15 Minor Over	99	1	2
	Digital sensor 1 Major Under	99	1	3
	Digital sensor 15 Major Over	99	1	4
	Digital sensor 15 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 16 Minor Under	99	1	33
	Digital sensor 16 Minor Over	99	1	34
	Digital sensor 16 Major Under	99	1	35
	Digital sensor 16 Major Over	99	1	36
	Digital sensor 16 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64

Display Mapping

Display	Points	Alarm Point	Description	Solution
1	33	Default configuration	The internal NVRAM may be damaged. The unit is using default configuration settings.	Login to the NetGuardian's web browser and configure the unit. Power cycle to see is the alarm clears.
	34	DCP poller inactive	The NetGuardian is configured to listen for DCP polls but has not received a poll in over 5 minutes.	Check if unit can ping T/Mon or disable if not in use.
	39	SNMP community error	Community string does not match your SNMP master's community string.	Verify both community strings to make sure they match.
	41	Notification 1 failed	A notification 1 event, such as a page or email, was unsuccessful.	Verify that you can ping both devices.
	42	Notification 2 failed	A notification 2 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	43	Notification 3 failed	A notification 3 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	44	Notification 4 failed	A notification 4 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	45	Notification 5 failed	A notification 5 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	46	Notification 6 failed	A notification 6 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	47	Notification 7 failed	A notification 7 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	48	Notification 8 failed	A notification 8 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	49	NTP failed	Communication with Network Time Server has failed.	Try pinging the Network Time Server's IP Address as it is configured. If the ping test is successful, then check the port setting and verify the port is not being blocked on your network.
	50	Timed Tick	Toggles state at constant rate as configured by the Timed Tick timer variable. Useful in testing integrity of SNMP trap alarm reporting.	To turn the feature off, set the Timed Tick timer to 0.
	51	Dynamic memory full	Not expected to occur.	Call DPS Tech Support (559) 454-1600.
	52	Unit reset	Unit has rebooted.	If unintentional, call DPS Tech Support: (559) 454-1600.
	55	TRIP error	Not expected to occur.	Make sure Trip ID on the NetGuardian unit matches the Trip ID on T/Mon for the unit. If they match, call DPS Tech Support (559) 454-1600.
	56	No dial tone	Issue with connectivity.	Check cable. If cable is securely attached, call DPS Tech Support (559) 454-1600.
	57	Modem failed	Not expected to occur.	Call DPS Tech Support (559) 454-1600.
	58	Contact Closure Comm Failed		
	59	Virtual Control Config Error	Virtual Control being triggered is not enabled or has invalid configuration	If Virtual Control not enabled, then enable or check Control Group and script to ensure proper configuration.

System Alarms Display Map

16.2 DNP3 Point List (PGE Only)

Point Index	Description	Class
0-15	Discrete Alarms 1-16	1
16-31	Derived Alarms 1-16	1
32	Default Configuration	1
33	DCP Poller Inactive	1
34	Unused	1
35	Unused	1
36	Unused	1
37	Unused	1
38	SNMP Community Error	1
39	Unused	1
40	Notification 1 Failed	1
41	Notification 2 Failed	1
42	Notification 3 Failed	1
43	Notification 4 Failed	1
44	Notification 5 Failed	1
45	Notification 6 Failed	1
46	Notification 7 Failed	1
47	Notification 8 Failed	1
48	NTP Failed	1
49	Timed Tick	1
50	Dynamic Memory Full	1
51	Unit Reset	1
52	Unused	1
53	Unused	1
54	TRIP Error	1
55	No Dialtone	1
56	Modem Failed	1
57	Contact Closure Comm Failed	1
58	Virtual Control Config Error	1
59-63	Unused	1
	~ Analog 1 ~	
64	Minor Under	1
65	Minor Over	1
66	Major Under	1
67	Major Over	1
68	Not Detected	1
	~ Analog 2 ~	
69	Minor Under	1
70	Minor Over	1
71	Major Under	1
72	Major Over	1
73	Not Detected	1
	~ Analog 3 ~	
74	Minor Under	1
75	Minor Over	1
76	Major Under	1
77	Major Over	1
78	Not Detected	1
	~ Analog 4 ~	
79	Minor Under	1
80	Minor Over	1

81	Major Under	1
82	Major Over	1
83	Not Detected	1
	~ Analog 5 ~	
84	Minor Under	1
85	Minor Over	1
86	Major Under	1
87	Major Over	1
88	Not Detected	1
	~ Analog 6 ~	
89	Minor Under	1
90	Minor Over	1
91	Major Under	1
92	Major Over	1
93	Not Detected	1
	~ Sensor 1 ~	
94	Minor Under	1
95	Minor Over	1
96	Major Under	1
97	Major Over	1
98	Not Detected	1
	~ Sensor 2 ~	
99	Minor Under	1
100	Minor Over	1
101	Major Under	1
102	Major Over	1
103	Not Detected	1
	~ Sensor 3 ~	
104	Minor Under	1
105	Minor Over	1
106	Major Under	1
107	Major Over	1
108	Not Detected	1
	~ Sensor 4 ~	
109	Minor Under	1
110	Minor Over	1
111	Major Under	1
112	Major Over	1
113	Not Detected	1
	~ Sensor 5 ~	
114	Minor Under	1
115	Minor Over	1
116	Major Under	1
117	Major Over	1
118	Not Detected	1
	~ Sensor 6 ~	
119	Minor Under	1
120	Minor Over	1
121	Major Under	1
122	Major Over	1
123	Not Detected	1
	~ Sensor 7 ~	
124	Minor Under	1
125	Minor Over	1
126	Major Under	1
127	Major Over	1

128	Not Detected	1
	~ Sensor 8 ~	
129	Minor Under	1
130	Minor Over	1
131	Major Under	1
132	Major Over	1
133	Not Detected	1
	~ Sensor 9 ~	
134	Minor Under	1
135	Minor Over	1
136	Major Under	1
137	Major Over	1
138	Not Detected	1
	~ Sensor 10 ~	
139	Minor Under	1
140	Minor Over	1
141	Major Under	1
142	Major Over	1
143	Not Detected	1
	~ Sensor 11 ~	
144	Minor Under	1
145	Minor Over	1
146	Major Under	1
147	Major Over	1
148	Not Detected	1
	~ Sensor 12 ~	
149	Minor Under	1
150	Minor Over	1
151	Major Under	1
152	Major Over	1
153	Not Detected	1
	~ Sensor 13 ~	
154	Minor Under	1
155	Minor Over	1
156	Major Under	1
157	Major Over	1
158	Not Detected	1
	~ Sensor 14 ~	
159	Minor Under	1
160	Minor Over	1
161	Major Under	1
162	Major Over	1
163	Not Detected	1
	~ Sensor 15 ~	
164	Minor Under	1
165	Minor Over	1
166	Major Under	1
167	Major Over	1
168	Not Detected	1
	~ Sensor 16 ~	
169	Minor Under	1
170	Minor Over	1
171	Major Under	1
172	Major Over	1
173	Not Detected	1
174-192	Unused	2

Point Index	Description	Class
0	Control 1	2
1	Control 2	2
2	Control 3	2
3	Control 4	2
4	Control 5	2
5	Control 6	2
6	Control 7	2
7	Control 8	2
8	Control 9	2
9	Control 10	2
10	Control 11	2
11	Control 12	2
12	Control 13	2
13	Control 14	2
14	Control 15	2
15	Control 16	2
16	Control 17	2
17	Control 18	2
18	Virtual Control 1	2
19	Virtual Control 2	2
20	Virtual Control 3	2
21	Virtual Control 4	2
22	Virtual Control 5	2
23	Virtual Control 6	2
24	Virtual Control 7	2
25	Virtual Control 8	2
26-63	Unused	2

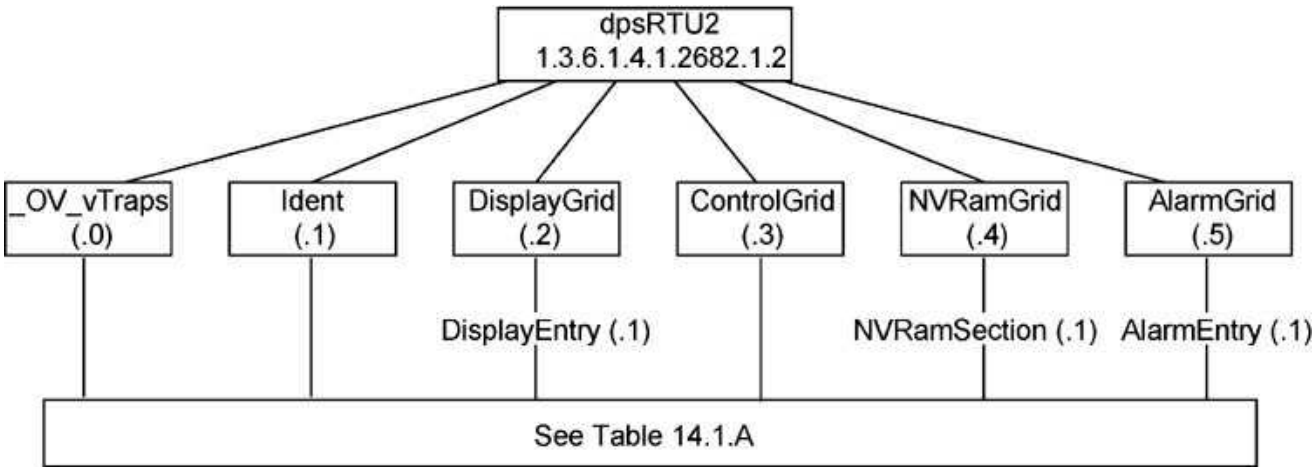
Point Index	Description	Class
0	Analog 1	3
1	Analog 2	3
2	Analog 3	3
3	Analog 4	3
4	Analog 5	3
5	Analog 6	3
6	Sensor 1	3
7	Sensor 2	3
8	Sensor 3	3
9	Sensor 4	3
10	Sensor 5	3
11	Sensor 6	3
12	Sensor 7	3
13	Sensor 8	3
14	Sensor 9	3
15	Sensor 10	3
16	Sensor 11	3
17	Sensor 12	3
18	Sensor 13	3
19	Sensor 14	3
20	Sensor 15	3
21	Sensor 16	3

16.3 Voice Notification Flow Chart

	Press 1	Press 2	Press 3	Press 4	Press 5	Press 6	Press 7	Press *	Press #
Main Menu	List Events	Acknowledge all Events	List Standing Alarms	Go to **Operate Relays**	-	-	-	Go to **More Options**	-
More Options	Record Descriptions, go to **Select Descriptions**	Report Analog Values	-	-	-	-	-	-	Return to **Main Menu**
Select Description	Select alarm description, go to **Record Description**	Select analog description, go to **Record Description**	Select relay description, go to **Record Description**	Select other descriptions, go to **Record Description**	Select alarm set description, go to **Record Description**	Select alarm clear description, go to **Record Description**	Select ping target description, go to **Record Description**	-	Return to **Main Menu**
Record Description	Play user description	Record user description	Delete user description	-	-	-	-	-	Return to **Select Description**
Operate Relays	*Operate Relay	*Release Relay	Momentary Operate Relay	-	-	-	-	-	Return to **More Options**

16.4 SNMP Manager Functions

The SNMP Manager allows the user to view alarm status, set date/time, issue controls, and perform a resync. The display and tables below outline the MIB object identifiers. Table 14.2 begins with dpsRTU; however, the MIB object identifier tree has several levels above it. The full English name is as follows: root.iso.org.dod.internet.private. enterprises.dps-Inc.dpsAlarmControl.dpsRTU. Therefore, dpsRTU's full object identifier is 1.3.6.1.4.1.2682.1.2. Each level beyond dpsRTU adds another object identifying number. For example, the object identifier of the Display portion of the Control Grid is 1.3.6.1.4.1.2682.1.2.3.3 because the object identifier of dpsRTU is 1.3.6.1.4.1.2682.1.4 + the Control Grid (.3) + the Display (.3).



Tbl. B1 (O.)_OV_Traps points
_OV_vTraps (1.3.6.1.4.1.2682.1.2.0)
PointSet (.20)
PointClr (.21)
SumPSet (.101)
SumPClr (.102)
ComFailed (.103)
ComRestored (.014)
P0001Set (.10001) through P0064Set (.10064)
P0001Clr (.20001) through P0064Clr (.20064)

Tbl. B2 (.1) Identity points
Ident (1.3.6.1.4.1.2682.1.2.1)
Manufacturer (.1)
Model (.2)
Firmware Version (.3)
DateTime (.4)
ResyncReq (.5)*
* Must be set to "1" to perform the resync request which will resend TRAPs for any standing alarm.

Tbl. B3 (.2) DisplayGrid points
DisplayEntry (1.3.6.1.4.1.2682.1.2.2.1)
Port (.1)
Address (.2)
Display (.3)
DispDesc (.4)*
PntMap (.5)*

Tbl. B3 (.3) ControlGrid points
ControlGrid (1.3.6.1.4.1.2682.1.2.3)
Port (.1)
Address (.2)
Display (.3)
Point (.4)
Action (.5)

Tbl. B6 (.6) Analog Channels
Channel Entry (1.3.6.1.4.1.2682.1.4.6.1)
Channel Number (.1)
Enabled (.2)
Description (.3)
Value (.4)
Thresholds (.5)*
*If Mj, Mn is assumed

Tbl. B5 (.5) AlarmEntry points
AlarmEntry (1.3.6.4.1.2682.1.2.5.1)
Aport (.1)
AAddress (.2)
ADisplay (.3)
APoint (.4)
APntDesc (.5)*
AState (.6)
* For specific alarm points, see Table B6

16.5 SNMP Granular Trap Packets

The tables below provide a list of the information contained in the SNMP Trap packets sent by the NetGuardian.

SNMP Trap managers can use one of two methods to get alarm information:

1. Granular traps (not necessary to define point descriptions for the NetGuardian) **OR**

2. The SNMP manager reads the description from the Trap.

UDP Header	Description
1238	Source port
162	Destination port
303	Length
0xBAB0	Checksum

UDP Headers and descriptions

SNMP Header	Description
0	Version
Public	Request
Trap	Request
1.3.6.1.4.1.2682.1.4	Enterprise
126.10.230.181	Agent address
Enterprise Specific	Generic Trap
8001	Specific Trap
617077	Time stamp
1.3.7.1.2.1.1.1.0	Object
NetGuardian v1.0K	Value
1.3.6.1.2.1.1.6.0	Object
1-800-622-3314	Value
1.3.6.1.4.1.2682.1.4.4.1.0	Object
01-02-1995 05:08:27.760	Value
1.3.6.1.4.1.2682.1.4.5.1.1.99.1.1.1	Object
99	Value
1.3.6.1.4.1.2682.1.4.5.1.2.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.3.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.4.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.5.99.1.1.1	Object
Rectifier Failure	Value
1.3.6.1.4.1.2682.1.4.5.1.6.99.1.1.1	Object
Alarm	Value

SNMP Headers and descriptions

17 Frequently Asked Questions

Here are answers to some common questions from NetGuardian users. The latest FAQs can be found on the NetGuardian support web page, **http://www.dpstele.com.**

If you have a question about the NetGuardian, please call us at **(559) 454-1600** or e-mail us at **support@dpstele.com.**

17.1 General FAQs

Q. How do I telnet to the NetGuardian?

A. You must use **Port 2002** to connect to the NetGuardian. Configure your Telnet client to connect using TCP/IP (**not** "Telnet," or any other port options). For connection information, enter the IP address of the NetGuardian and Port 2002. For example, to connect to the NetGuardian using the standard Windows Telnet client, click Start, click Run, and type "telnet <NetGuardian IP address> 2002."

Q. How do I connect my NetGuardian to the LAN?

A. To connect your NetGuardian to your LAN, you need to configure the unit IP address, the subnet mask and the default gateway. A sample configuration could look like this:
Unit Address: 192.168.1.100
subnet mask: 255.255.255.0
Default Gateway: 192.168.1.1
Save your changes by writing to NVRAM and reboot. Any change to the unit's IP configuration requires a reboot.

Q. When I connect to the NetGuardian through the craft port on the front panel it either doesn't work right or it doesn't work at all. What's going on?

A. Make sure your using the right COM port settings. Your COM port settings should read:
Bits per second: 9600 (9600 baud)
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None
Important! Flow control **must** be set to **none**. Flow control normally defaults to hardware in most terminal programs, and this will not work correctly with the NetGuardian.

Q. The LAN link LED is green on my NetGuardian, but I can't poll it from my T/Mon.

A. Some routers will not forward packets to an IP address until the MAC address of the destination device has been registered on the router's Address Resolution Protocol (ARP) table. Enter the IP address of your gateway and your T/Mon system to the ARP table.

Q. What characteristics of an alarm point can be configured through software? For instance, can point 4 be used to sense an active-low signal, or point 5 to sense a level or an edge?

A. The unit's standard configuration is for all alarm points to be level-sensed. You **cannot** use configuration software to convert alarm points to TTL (edge-sensed) operation. TTL alarm points are a hardware option that must be specified when you order your NetGuardian. Ordering TTL points for your NetGuardian does not add to the cost of the unit What you can do with the configuration software is change any alarm point from "Normal" to "Reversed" operation. Switching to Reversed operation has different effects, depending on the kind of input connected to the alarm point:

- **If the alarm input generates an active-high signal,** switching to Reversed operation means the NetGuardian will declare an alarm in the absence of the active-high signal, creating the practical equivalent of an active-low alarm.
- **If the alarm input generates an active-low signal,** switching to Reversed operation means the NetGuardian will declare an alarm in the absence of the active-low signal, creating the practical equivalent of an active-high alarm.

- **If the alarm input is normally open,** switching to Reversed operation converts it to a normally closed alarm point.
- **If the alarm input is normally closed,** switching to Reversed operation converts it to a normally open alarm point.

Q. I'm unsure if the voltage of my power supply is within the specified range. How to I test the voltage?
A. Connect the black common lead of a voltmeter to the ground terminal of the battery. Connect the red lead of the voltmeter to the batter's VCD terminal. The voltmeter should read between +12 and +30VDC.

17.2 SNMP FAQs

Q. Which version of SNMP is supported by the SNMP agent on the NetGuardian?
A. SNMP v1, SNMPv2 and SNMPv3.

Q. How do I configure the NetGuardian to send traps to an SNMP manager? Is there a separate MIB for the NetGuardian? How many SNMP managers can the agent send traps to? And how do I set the IP address of the SNMP manager and the community string to be used when sending traps?
A. The NetGuardian begins sending traps as soon as the SNMP managers are defined. The NetGuardian MIB can be found on the DPS Telecom website. The MIB should be compiled on your SNMP manager. (**Note:** MIB versions may change in the future.) The unit supports 2 SNMP managers, which are configured by entering its IP address in the Trap Address field of Ethernet Port Setup. To configure the community strings, choose SNMP from the Edit menu, and enter appropriate values in the Get, Set, and Trap fields.

Q. Does the NetGuardian support MIB-2 and/or any other standard MIBs?
A. The NetGuardian supports the bulk of MIB-2.

Q. Does the NetGuardian SNMP agent support both NetGuardian and T/MonXM variables?
A. The NetGuardian SNMP agent manages an embedded MIB that supports only the NetGuardian's RTU variables. The T/MonXM variables are included in the distributed MIB only to provide SNMP managers with a single MIB for all DPS Telecom products.

Q. How many traps are triggered when a single point is set or cleared? The MIB defines traps like "major alarm set/cleared," "RTU point set," and a lot of granular traps, which could imply that more than one trap is sent when a change of state occurs on one point.
A. Generally, a single change of state generates a single trap.

Q. What does "point map" mean?
A. A point map is a single MIB leaf that presents the current status of a 64-alarm-point display in an ASCII-readable form, where a "." represents a clear and an "x" represents an alarm.

Q. The NetGuardian manual talks about control relay outputs. How do I control these from my SNMP manager?
A. The control relays are operated by issuing the appropriate set commands, which are contained in the DPS Telecom MIB.

Q. How can I associate descriptive information with a point for the RTU granular traps?
A. The NetGuardian alarm point descriptions are individually defined using the Web Browser.

Q. My SNMP traps aren't getting through. What should I try?
A. Try these three steps:

1. Make sure that the Trap Address (IP address of the SNMP manager) is defined. (If you changed the Trap Address, make sure you saved the change to NVRAM and rebooted.)
2. Make sure all alarm points are configured to send SNMP traps.
3. Make sure the NetGuardian and the SNMP manager are both on the network. Use the unit's ping command to ping the SNMP manager.

18 Technical Support

DPS Telecom products are backed by our courteous, friendly Technical Support representatives, who will give you the best in fast and accurate customer service. To help us help you better, please take the following steps before calling Technical Support:

1. Check the DPS Telecom website.
You will find answers to many common questions on the DPS Telecom website, at **http://www.dpstele.com/support/**. Look here first for a fast solution to your problem.

2. Prepare relevant information.
Having important information about your DPS Telecom product in hand when you call will greatly reduce the time it takes to answer your questions. If you do not have all of the information when you call, our Technical Support representatives can assist you in gathering it. Please write the information down for easy access. Please have your user manual and hardware serial number ready.

3. Have access to troubled equipment.
Please be at or near your equipment when you call DPS Telecom Technical Support. This will help us solve your problem more efficiently.

4. Call during Customer Support hours.
Customer support hours are Monday through Friday, from 7 A.M. to 6 P.M., Pacific time. The DPS Telecom Technical Support phone number is **(559) 454-1600**.

Emergency Assistance: *Emergency assistance is available 24 hours a day, 7 days a week. For emergency assistance after hours, allow the phone to ring until it is answered with a paging message. You will be asked to enter your phone number. An on-call technical support representative will return your call as soon as possible.*

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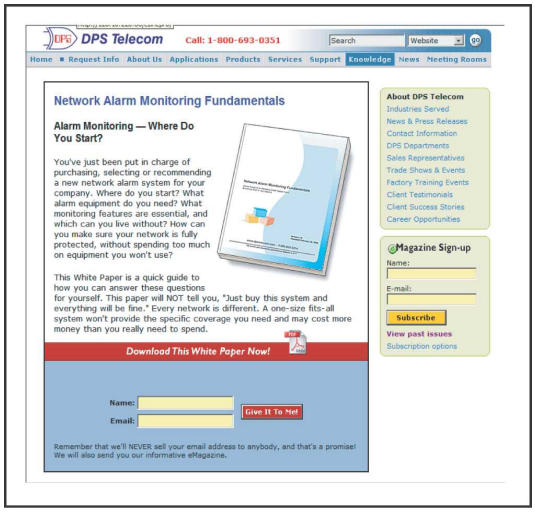
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